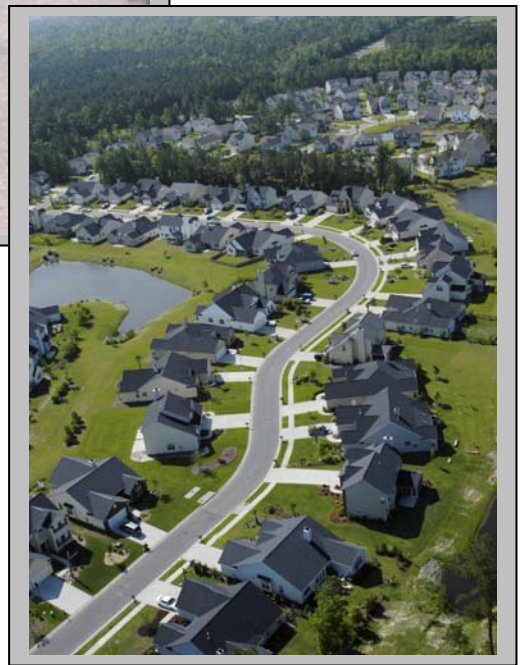


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# **Living with Coyotes in Suburban Areas: Insights from Two New York State Counties**



**December 2008**

**HDRU Series No. 08- 8**

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Prepared by

Heather Wieczorek Hudenko,  
William F. Siemer, and Daniel J. Decker  
Human Dimensions Research Unit  
Department of Natural Resources  
Cornell University  
Ithaca, NY 14853

## **HUMAN DIMENSIONS RESEARCH UNIT PUBLICATION SERIES**

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# **Living with Coyotes in Suburban Areas: Insights from Two New York State Counties**

**Heather Wieczorek Hudenko, William F. Siemer, and Daniel J. Decker**

Human Dimensions Research Unit  
Department of Natural Resources  
Cornell University  
Ithaca, New York, 14853-3001

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December 2008

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**Key Words:** attitudes, *Canis latrans*, carnivores, concerns, coyote, human-wildlife interactions, risk perception, Saratoga County, suburban, stakeholders, Westchester County

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## **EXECUTIVE SUMMARY**

### **Background and research need**

Reports of negative interactions between humans and coyotes (*Canis latrans*) in residential areas appear to be increasing in a number of municipal areas across the United States. As a consequence, several state wildlife agencies are considering actions they might take to reduce negative impacts associated with the presence of suburban coyotes. Little research has been conducted on this topic, so wildlife agencies have limited scientific information on which to base programmatic decisions. Filling information gaps on human-coyote interactions has been identified as a research priority in New York State (NY), where wildlife managers have noted an increase in coyote-related incident reports received by the New York State Department of Environmental Conservation (DEC).

### **Purpose of this report**

In 2006, DEC provided funding to initiate a multi-year study of human-coyote interactions in suburban areas of NY. The overall study is designed to improve understanding of both the ecological and human dimensions (HD) components of human-coyote interactions. In 2006 and 2007, data collection for the HD component of the study included telephone surveys in two NY counties (Westchester and Saratoga) with suburban areas occupied by coyotes. The purpose of this publication is to report findings and insights from those two telephone surveys.

### **Research objectives**

Four research objectives guided this portion of our study:

- Understand the extent and nature of human-coyote interactions within a suburban community in NY.
- Characterize underlying attitudes of the community toward suburban coyotes.
- Measure risk perception of community residents with respect to coyotes.
- Increase understanding of the factors that influence coyote-related attitudes and risk perceptions.

### **Methods**

In 2006, we conducted a telephone survey of Westchester County residents in two study areas to: (1) understand the extent and nature of human-coyote interactions within a suburban community in NY; (2) characterize underlying attitudes of the community toward suburban coyotes; and (3) measure risk perception of community residents with respect to coyotes. We used chi-square tests to identify differences between study areas.

In 2007, we conducted a second telephone survey in suburban areas of Saratoga County. By collecting data in a second area, with different socioeconomic characteristics and a longer history of coyote presence, we were able to improve understanding of factors that may influence

suburban residents' attitudes toward coyotes and perceptions of coyote-related risks. We examined the data for differences in attitudes and risk perceptions based on the above characteristics using chi-square tests.

### **Key findings from resident telephone surveys**

Our situation analysis revealed that awareness of coyote presence and sightings of coyotes were relatively high in the study communities, but problematic interactions with coyotes were uncommon. About half of the residents surveyed reported enjoying coyotes to some extent and the majority of respondent who completed an in-depth questionnaire found the likelihood of injury from a coyote acceptable. Despite these findings, we found that concern about coyotes in suburban areas was rather high and tolerance for their presence in most suburban spaces was low.

### **Conclusions**

The data indicate that the potential for widespread negative human-coyote interactions is low, but concern about coyote-related issues is high. Managers and organizations wishing to engage in communication efforts about coyotes may want to target the high concern associated with coyote presence. The data also suggest that experience may play a role in attitudes and perceptions of risk about coyotes, but more research is needed to explore this relationship.

### **Next steps**

To learn more about the circumstances surrounding actual encounters between humans and coyotes in NY, the next phase of coyote-related research could focus on stakeholders who have reported coyote incidents. This line of inquiry would allow researchers to: (1) identify commonalities in human behavior or attitudes in reported cases of negative human-coyote interactions in suburban areas; and (2) estimate human attitude and behavior change (if any) associated with negative human-coyote encounters.

## **ACKNOWLEDGMENTS**

We would like to thank the many individuals and organizations that have contributed to this research. We are grateful to all of the Westchester County and Saratoga County community members that offered their insights through the telephone surveys. New York State Department of Environmental Conservation personnel on the Coyote Project Contact Team have been integral to the research planning process and regularly provided guidance. We thank Gordon Batcheller, Lou Berchielli, Scott Smith, Andy MacDuff, Wayne Masters, and Marie Kautz for their involvement with this work. Our collaborators at Cornell, Paul Curtis and Daniel Bogan, aided with the identification of study areas. The faculty, staff, and students in the Human Dimensions Research Unit at Cornell University provided valuable input and support to all aspects of the project. Our cooperating partners, Cornell Cooperative Extension of Westchester County (CCE) and Westchester County Department of Parks, Recreation and Conservation, contributed an important connection to our study communities. In particular we thank Jeanne Wilcox and Jim Lee with CCE and Jeff Main and Beth Herr with the Parks Department.

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## INTRODUCTION

Reports of negative interactions between humans and coyotes (*Canis latrans*) in residential areas appear to be increasing in a number of municipal areas across the United States (Gehrt 2006). As a consequence, several state wildlife agencies are considering actions to reduce negative impacts associated with the presence of suburban coyotes. The ecological dimensions of human-coyote conflicts (e.g., ecological dimensions of coyote population control programs, effects of coyote predation on reproductive success of game species) have been the focus of considerable attention. The human dimensions (HD) of human-coyote conflict have received much less research attention, particularly in suburban and urban contexts, where contemporary management challenges are emerging (Wieczorek Hudenko et al. 2009). Professional interest in research on the ecological and human dimensions of suburban coyote management is increasing, as wildlife professionals across the country seek out scientific information on which to base their programmatic decisions. Additional research focused on suburban contexts may enable wildlife professionals to develop proactive strategies to manage human-coyote interactions and encourage human-coyote coexistence. Other governmental and nongovernmental organizations may be able to utilize research insights to design effective education and outreach materials aimed at avoiding human-coyote conflicts.

Filling information gaps on human-coyote interaction in suburban settings became a research priority in NY as managers within the New York State Department of Environmental Conservation (DEC) began noting an increase in coyote-related incident reports received by their agency. In 2006, DEC provided funding to initiate a multi-year study of human-coyote interaction in suburban areas of NY. The New York Suburban Coyote Study was designed to improve understanding of both the ecological and HD components of human-coyote interactions. The Human Dimensions Research Unit (HDRU) in the Department of Natural Resources at Cornell University conducted the HD portion of the study.

### **Purpose of this report**

HDRU staff began Phase I of the HD work with a set of interviews with key informants in Westchester County, a suburban county just north of New York City that DEC records identified as a hotspot for citizen calls to DEC about coyotes. Results from those interviews were reported in Wieczorek Hudenko et al. (2008a). We collected additional data for Phase I via telephone surveys in 2006 and 2007. Data were collected in suburban areas of two NY counties (Westchester and Saratoga). Our purpose for this publication is to provide a comprehensive report of findings and insights from the 2006 and 2007 telephone surveys. This publication serves as a reference source on Phase I of the HD component of the New York Suburban Coyote Study. Work on continuing phases of the project will build upon the findings presented here.

### **Study purpose**

As noted above, the New York Suburban Coyote Study is an integrated HD and ecology inquiry. This multi-year investigation will provide baseline data about issues related to coyote presence in suburban communities in NY to support policy and management actions for coyotes. The ecological work investigates coyote spatial ecology and social structure and examines coyote dependence on anthropogenic resources (i.e., food and habitat). The HD inquiry

evaluates people's attitudes about coyotes and behaviors related to coyotes to increase understanding of how these factors influence the coexistence of humans and coyotes as well as the outcome of interactions.

The data gathered for both components of the study in the initial phase of inquiry informed subsequent phases of work. Thus, as fieldwork for the study progressed, objectives evolved to reflect new knowledge about the study context. Original objectives for Phase I and II of the HD study were:

- understand the extent and nature of human-coyote interactions within a suburban community in NY;
- characterize underlying attitudes of the community toward suburban coyotes;
- measure risk perception of community residents with respect to coyotes;
- characterize human behaviors that could influence human-coyote interactions.

After the initial qualitative and quantitative HD inquiries, the research team determined that an additional investigation in another suburban area of NY would provide a comparison helpful to the situation analysis. Furthermore, findings from the first survey highlighted the need for information focused on the effect of experience with coyotes on attitudes and risk perceptions.

The results from the initial HD and ecology work also indicated that too few people experienced human-coyote interactions in Westchester County to pursue the final objective (intended Phase II) with this work. So this objective (characterize human behaviors that could influence human-coyote interactions) was postponed for a later inquiry and an additional objective was added to the current HD study.

- Increase understanding of the factors that influence coyote-related attitudes and risk perceptions.
  - Characterize how demographic characteristics, tenure of residence, and history of coyote presence in a community influence residents' attitudes and risk perceptions about coyotes.
  - Characterize community norms about coyotes in an area with a history of coyote presence.

## **METHODS**

### **Westchester County resident telephone survey (2006)**

#### *Study areas*

HDRU staff defined two study areas for the telephone survey. These represented areas in Westchester County with different configurations of open space and residential development density that the DEC and Cornell University biologists believed could affect the nature and extent of human-coyote interactions. The northern study area was defined by the adjacent towns of Somers and Yorktown; these towns retained a rural character. The southern area was defined as households (or residents) in the adjacent towns of Mount Pleasant and Greenberg; these towns



were more heavily developed than the northern towns (Figure 1). Although both study areas are in the New York City metropolitan area and are suburban by most definitions, they are different from one another in several key respects that the study team believed might influence attitudes, perceptions, and experiences.

### *Survey instrument*

During the initial phase of the inquiry, semi-structured, face-to-face interviews were conducted with 40 Westchester County informants to identify saliency of topics identified *a priori* as the focus for a survey. Interviews were conducted between June 1 and July 21, 2006. HDRU staff used findings from that inquiry (Wieczorek Hudenko et al. 2008a, 2008b) to develop a telephone survey instrument to assess the experiences and attitudes of Westchester County residents.

We prepared a draft questionnaire that was reviewed by and pre-tested HDRU staff, members of the DEC contact team for the study, select Westchester County stakeholders, and staff with the study's cooperating partners (Cornell Cooperative Extension of Westchester County and Westchester County Department of Parks, Recreation and Conservation). Our final survey instrument (Appendix A) contained 44 questions covering personal experience related to coyotes, attitudes, risk perceptions, behaviors, and respondent background characteristics. The Cornell University Committee on Human Subjects approved the questionnaire and research protocol (Protocol ID# 06-05-045).

The instrument had a routing question (item 12) that directed interviewers to lead respondents to either a short or long version of the survey instrument. The short version contained questions focused on residents' level and mechanisms of awareness and extent of experience with coyotes. Respondents who expressed concern or interest based on item 12 proceeded with the in-depth questionnaire that explored the extent and nature of their concern.

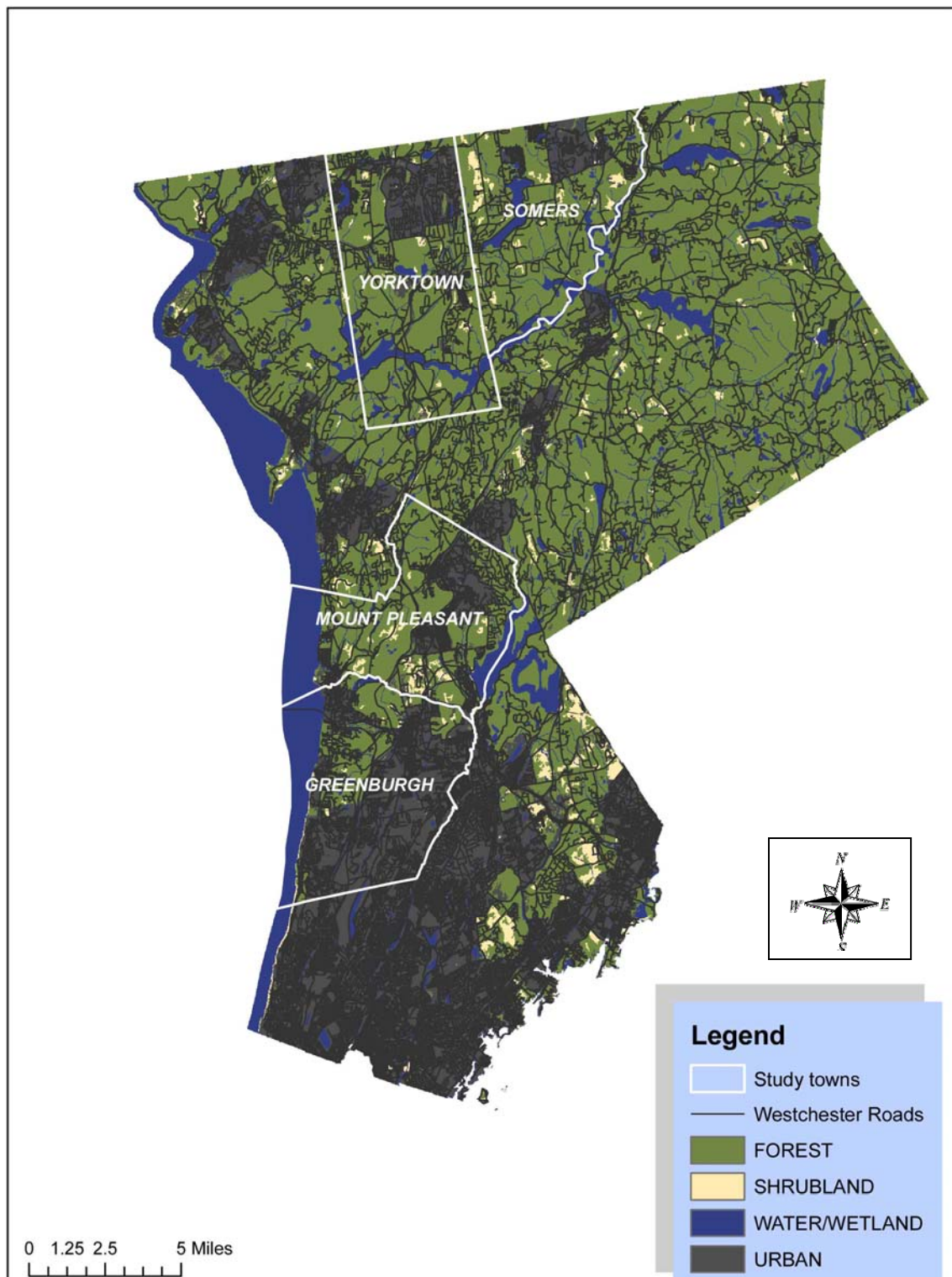
### *Sampling and survey implementation*

We subcontracted with the Survey Research Institute (SRI) at Cornell University to conduct the telephone survey. SRI obtained a listed sample of Westchester County residents in the four study townships from Genesys Sampling Systems. SRI initiated the telephone survey on October 10, 2006 and ended interviewing on November 3, 2006.

### **Saratoga County resident telephone survey (2007)**

#### *Need for further inquiry*

Analysis of the Westchester County informant interview and resident survey data revealed several unexpected trends. Additionally, the demographic characteristics of the Westchester County population are rather unique in comparison to other suburban areas of NY. Thus, the HD research team and DEC contact team determined that a comparison survey in a different location would be valuable. A second survey would provide a more comprehensive understanding of coyote issues in suburban NY areas and allow the team to evaluate



**Figure 1.** Westchester County townships designated as sampling areas for the 2006 Westchester County resident telephone survey.

circumstances in an area of the state where coyotes had been present longer than Westchester County (where coyotes have been present for a shorter duration than most other areas of NY).

### *Study areas*

The research team considered several potential areas of upstate NY for implementation of a comparison survey. We selected a portion Saratoga County, for two reasons. First, Saratoga County contains suburban areas with development patterns similar to those found in Westchester County. Second, residents of Saratoga county have been exposed to the presence of coyotes for a longer time period (i.e., coyotes have been present there for approximately 60 years, whereas they are only known to have been in Westchester County for approximately 20 years (Fener et al. 2005)). We believed that the similar development characteristics, but different history of coyote presence, would allow us to develop additional insights about attitudes toward and interactions with coyotes in suburban areas, as well as to evaluate factors influencing attitudes and risk perceptions.

The Saratoga County study area was larger than the Westchester County study area. The study area in Saratoga County corresponded to parts or all of eleven townships, including: Greenfield, Wilton, Milton, Saratoga Springs, Saratoga , Ballston, Malta, Stillwater, Clifton Park, Halfmoon, and Waterford (Figure 2).

### *Survey instrument*

We adapted the Westchester County survey instrument to reflect the revised objectives. The draft instrument was reviewed by and pre-tested with HDRU staff, and members of the DEC contact team. The final instrument (Appendix B) contained 42 questions covering personal experience related to coyotes, attitudes, risk perceptions, behaviors, behavioral intentions, social norms, and respondent background characteristics. The instrument contained nearly all of the items used in the Westchester County survey instrument. An additional screening item was added to allow for separation of respondents based on length of residency. The Cornell University Committee on Human Subjects approved the questionnaire and research protocol (Protocol ID# 06-05-045).

### *Sampling and survey implementation*

We subcontracted with the SRI to conduct the Saratoga County resident telephone survey. SRI worked with Genesys Sampling Systems to obtain a sample of Saratoga County residents living outside the city of Saratoga Springs, in areas of the county that HDRU staff identified (based on U.S. Census Bureau statistics on human population) as having housing densities similar to those found in the Westchester County study area. Genesys Sampling Systems drew a sample of resident names based on the postal zip code of county residents with listed telephone numbers (i.e., Saratoga residents were sampled from areas of selected townships as represented by zip codes: 12019, 12020, 12027, 12065, 12118, 12148, 12151, 12188, 12170, 12833, 12863, and 12866).



**Figure 2.** Saratoga County townships designated as sampling areas for the 2007 Saratoga County resident telephone survey.

Additionally, we used a screening process to sort respondents into two strata based on duration of residence in the county. Respondents who had lived in Saratoga County five years or less were placed in a newcomer resident stratum. Those who had lived in the county for twenty-one years or more were placed in a longtime resident stratum.

SRI began contacting residents on June 2, 2007 and completed data collection on August 1, 2007. Respondents completed either an in-depth questionnaire or a shortened version depending on the same attitude screening question used in the Westchester County resident survey.

## **Analysis**

Our unit of analysis was households (or residents). We used the Statistical Package for Social Science (SPSS) to conduct statistical analyses. We used chi-square tests to assess differences between groups. Differences are reported at the  $p < 0.05$  level of significance.

We created analysis subgroups to compare responses of residents who had lived in the county for five years or less (i.e., “newcomers”) and residents who had lived in the county 21 or more years (i.e., “longtime” residents). Creating these analysis subgroups allowed us to explore the potential impact of tenure of residence in the county on attitudes and risk perceptions.

## **RESULTS**

We set a goal of completing at least 280 in-depth interviews in each geographic stratum of the Westchester County resident telephone survey. Implementation concluded when SRI staff had achieved that target. SRI staff completed 580 short and in-depth interviews in each stratum (for a total of 1,160 interviews in all). The interview refusal rate was low; 87% of eligible residents reached by SRI completed an interview (Table 1)<sup>1</sup>.

In all, SRI staff completed 1,438 interviews during the Saratoga County resident telephone survey. The interview refusal rate was low; 83% of eligible residents reached by SRI completed an interview (Table 2). We set a goal of completing at least 280 in-depth interviews in each residence longevity stratum. However, funding limits for implementation were reached before SRI staff achieved the target in both stratum. SRI staff completed full interviews with 250 new and 290 longtime residents of Saratoga County. The target level for completed in-depth interviews was more difficult to obtain in this survey because of the sampling strategy. Many contacted residents were screened out of the study, due either to time of residence in the county (i.e., because they had lived in the county 6 – 20 years) or because they were routed toward the shortened form of the interview (i.e., they completed the shortened interview because they expressed neither interest in nor concern about coyotes).

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<sup>1</sup> All tables appear at the end of the report, in Appendix C.

## Findings from Westchester County resident telephone survey

### *Respondent characteristics*

The mean age of respondents was 54 years (range 18-95) and just over 50% of the sample was female. Nearly one third of respondents owned a dog and around one quarter owned a cat. Sixteen percent had young children in the household (Table 3). Respondents in the northern towns were more likely to have outdoor cats (15% vs. 8%,  $\chi^2 = 8.84$ ,  $p = 0.002$ ) and to feed birds or other wildlife (48% vs. 38%,  $\chi^2 = 12.4$ ,  $p < 0.001$ ). Very few respondents reported feeding pets outdoors or hunting within the past 5 years. Most respondents reported living in a suburban area (64%), although 26% said they lived in an area outside of town (Table 4). Respondents had levels of educational attainment above the statewide average; about 70% of residents reported having at least a four-year degree and 40% held a graduate degree (Table 5).

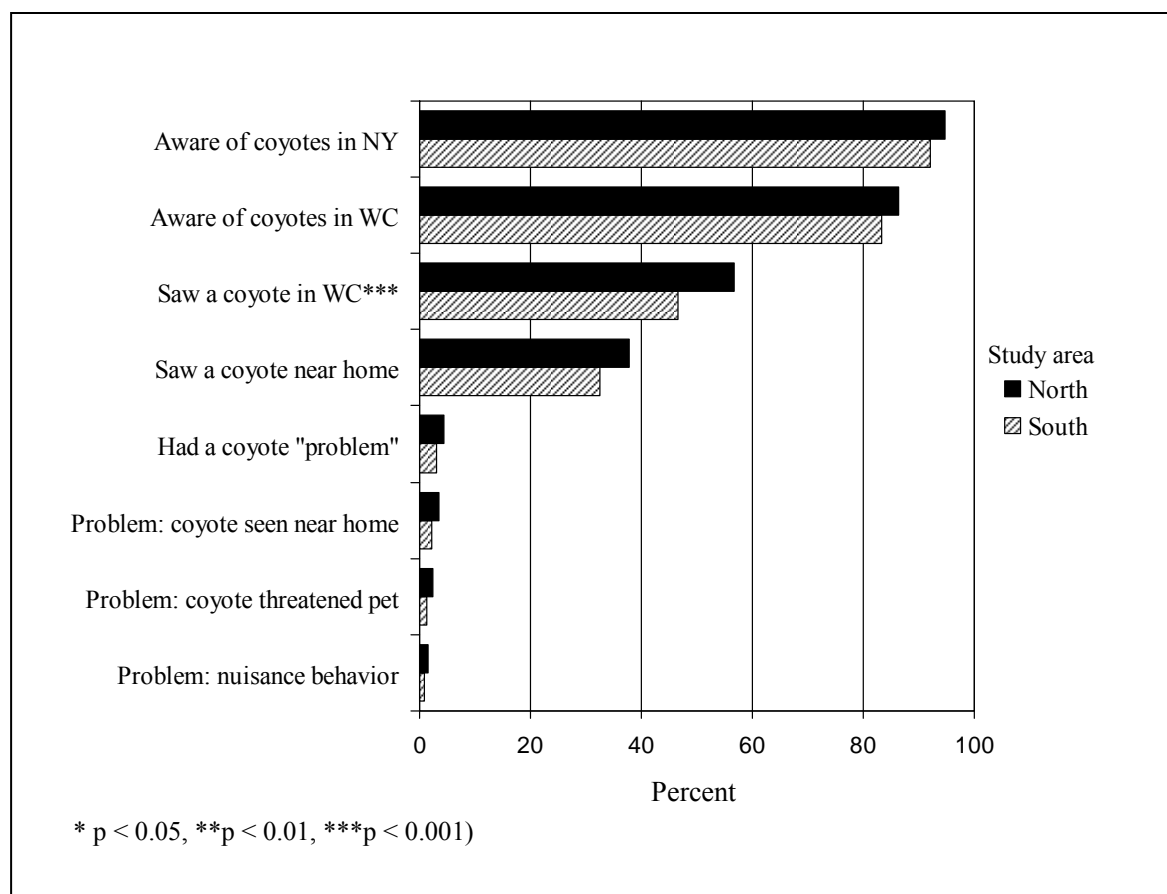
### *Awareness and experiences with coyotes*

Most residents (93%) were aware that coyotes are present in NY and aware that coyotes were present in Westchester County (85%) (Figure 3). Among those who were aware of coyotes, the majority gained awareness by: hearing or seeing coyotes (61%); talking with friends, family, or neighbors (68%); or from reading news reports about coyotes (68%). People in the southern towns were more likely than people in the northern towns to have become aware of coyotes by reading news reports (76% vs. 61%,  $\chi^2 = 22.93$ ,  $p < 0.001$ ). People in the southern towns were less likely than people in the northern towns to have become aware of coyotes through personal experience (i.e., by seeing or hearing coyotes) (57% vs. 67%,  $\chi^2 = 9.27$ ,  $p = 0.002$ ). Half of the respondents reported that they had seen a coyote in Westchester County and about one in three reported seeing a coyote near their residence. Residents of northern towns were more likely to have seen a coyote in the county (57% vs. 47%,  $\chi^2 = 11.61$ ,  $p < 0.001$ ) (Table 6).

Although awareness of coyotes was high, interactions with coyotes that were perceived as problems were uncommon. Of all those interviewed, fewer than 4% said that they had experienced a problem with a coyote near their home in Westchester County (26 respondents in the north; 18 in the south) (Figure 3, Table 6). Seeing a coyote near their residence was the most commonly cited “problem.” About half of the respondents who perceived a problem also mentioned a coyote threatening a pet. Three of the 44 people who reported a problem indicated a coyote threatened an adult and one indicated a child was threatened. Respondents with a problem were most likely to call their local police department or animal warden for assistance. While not statistically significant, more individuals in the southern study area reported problems than did residents of the northern study area (7% vs. 4%).

### *Attitudes toward coyotes*

A measure of overall attitude toward coyotes served as a screening question to route respondents to a full or abbreviated interview. The item had two response categories that



**Figure 3.** Awareness of and experiences with coyotes reported by respondents to the 2006 Westchester County resident telephone survey, compared by study area (i.e., northern study area vs. southern study area).

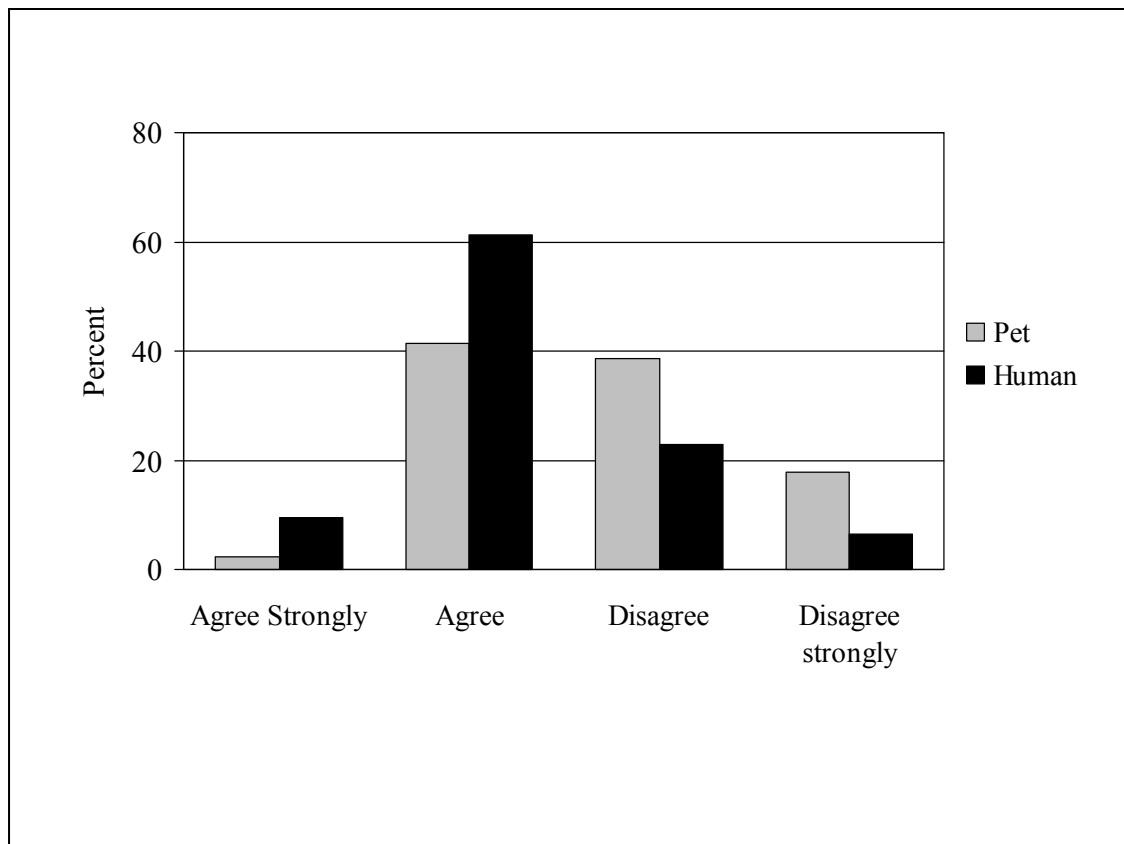
indicated no concern about coyotes: “I enjoy knowing coyotes are around, and I do not worry about problems coyotes may cause;” and “I have no particular opinions about coyotes in Westchester.” The other two response options implied a measure of concern: “I enjoy knowing coyotes are around, but I worry about problems coyotes may cause,” and “I do not enjoy knowing coyotes are around and regard them as a nuisance.” Responses on the screening question were distributed relatively evenly across response categories (Table 7). Northern residents, however, were more likely to enjoy coyotes without worry than were Southern residents (31% vs. 24%,  $\chi^2 = 6.24$ ,  $p = 0.012$ ). Fifty-one percent of respondents ( $n = 579$ ) indicated some concern about coyotes or regarded coyotes as a nuisance, and so were asked to complete an in-depth interview.

#### *In-depth survey: Attitudes, risk perceptions, and tolerance for coyote presence*

Among respondents who completed a full interview, about 74% expressed interest in coyotes and 63% said they wanted more information about coyotes. Only 27% of these

respondents said they were pleased about coyote presence, but over 50% agreed with the statement, “coyotes are a valuable part of the wildlife community.” Residents in northern towns were more likely to be pleased that coyotes live in the area than were respondents from southern towns (33% vs. 21%,  $\chi^2 = 9.42$ ,  $p = 0.002$ ) (Table 8).

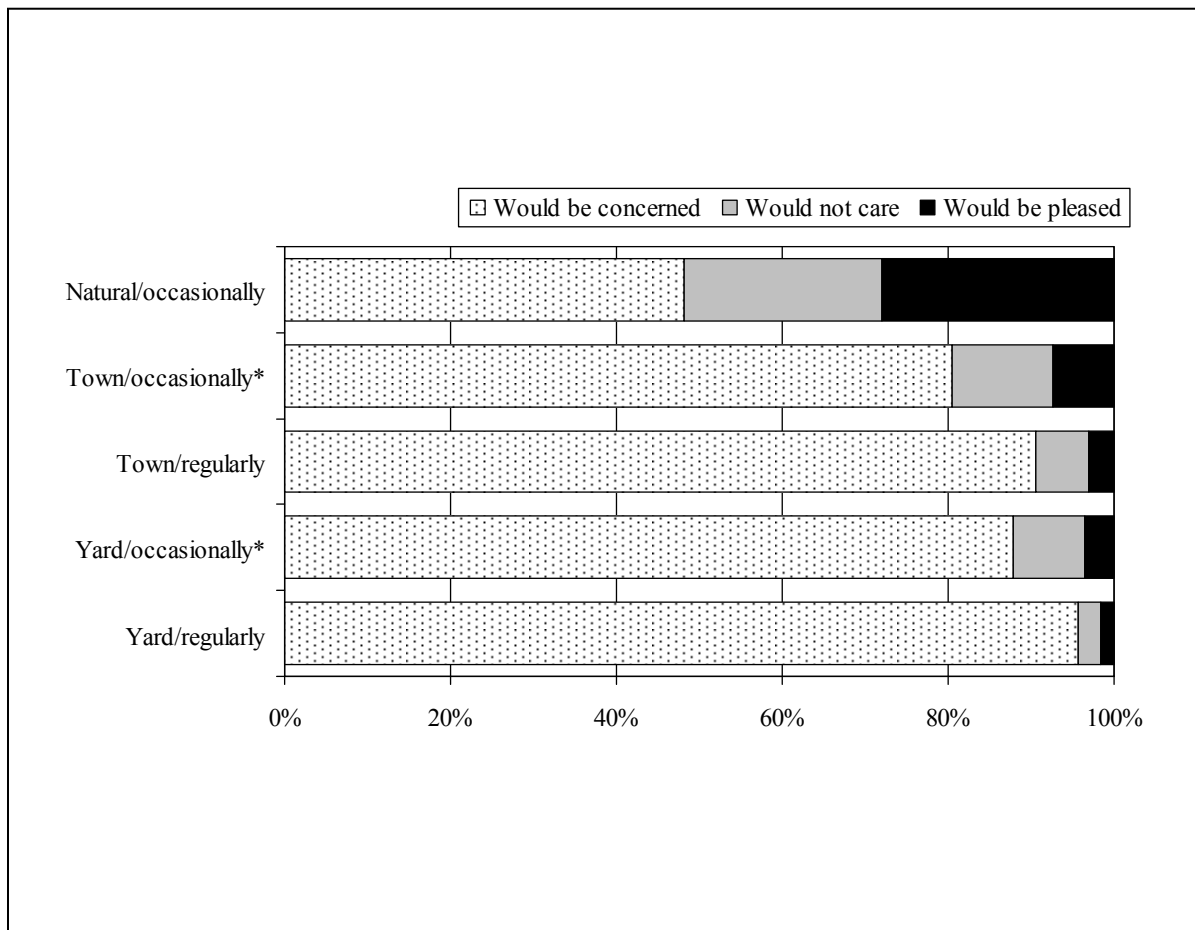
Approximately 77% of respondents who completed the in-depth questionnaire expressed general concern about coyote presence in the area. However, 44% percent of these individuals believed that the likelihood of an injury to a pet by a coyote was acceptably low and 71% agreed with the statement that the threat coyotes pose to humans is acceptably low (Figure 4, Table 8). Only 43 (3.7%) individuals in the subgroup reported being in a situation where they felt they or a family member were threatened by a coyote and none reported actual injury. Although many respondents agreed that coyote-related threats to pets and humans were acceptably low, most still harbored some concerns about coyote presence. Nearly 85% of respondents expressed “some” concern or “a great deal of” concern about the level of threat coyotes might present to pets in the area, and over 86% expressed some degree of concern about the threat coyotes might present to small children (Table 9).



**Figure 4.** Agreement with statements that the likelihood that a pet or human will be injured by a coyote in Westchester County is acceptably low as expressed by respondents in the two study areas for the 2006 Westchester County resident telephone survey.



We queried respondents on a series of six scenarios representing different frequencies and proximities of interactions with coyotes. We developed the measures to explore ideas for possible use in follow-up research. Frequency measures included occasional and regular presence of coyote. Proximity measures ranged from Westchester County in general, to within the respondent's town, and within the respondent's yard. The results for this series of questions indicate that aside from occasionally observing coyotes in natural areas, all other proximity/frequency scenarios raised some concern among 75% of respondents in the subgroup (Figure 5, Table 10). Residents in northern towns were less likely to be concerned if they occasionally observed coyotes in their town (75% vs. 85%,  $\chi^2 = 12.29$ ,  $p = 0.002$ ) and regularly heard coyotes howling near their home (69% vs. 82%,  $\chi^2 = 18.22$ ,  $p < 0.001$ ), and were more likely not to care if they occasionally observed coyotes in their backyard (11% vs. 6%,  $\chi^2 = 6.47$ ,  $p = 0.039$ ).



**Figure 5.** Percentage of Westchester County telephone respondents who reported that they would be pleased, not care, or be concerned about hypothetical scenarios representing different proximities and frequencies of coyote presence. Asterisk denotes a statistical difference between respondents in northern and southern study areas at  $p < 0.05$ .

## Findings from Saratoga County resident telephone survey

### *Respondent characteristics*

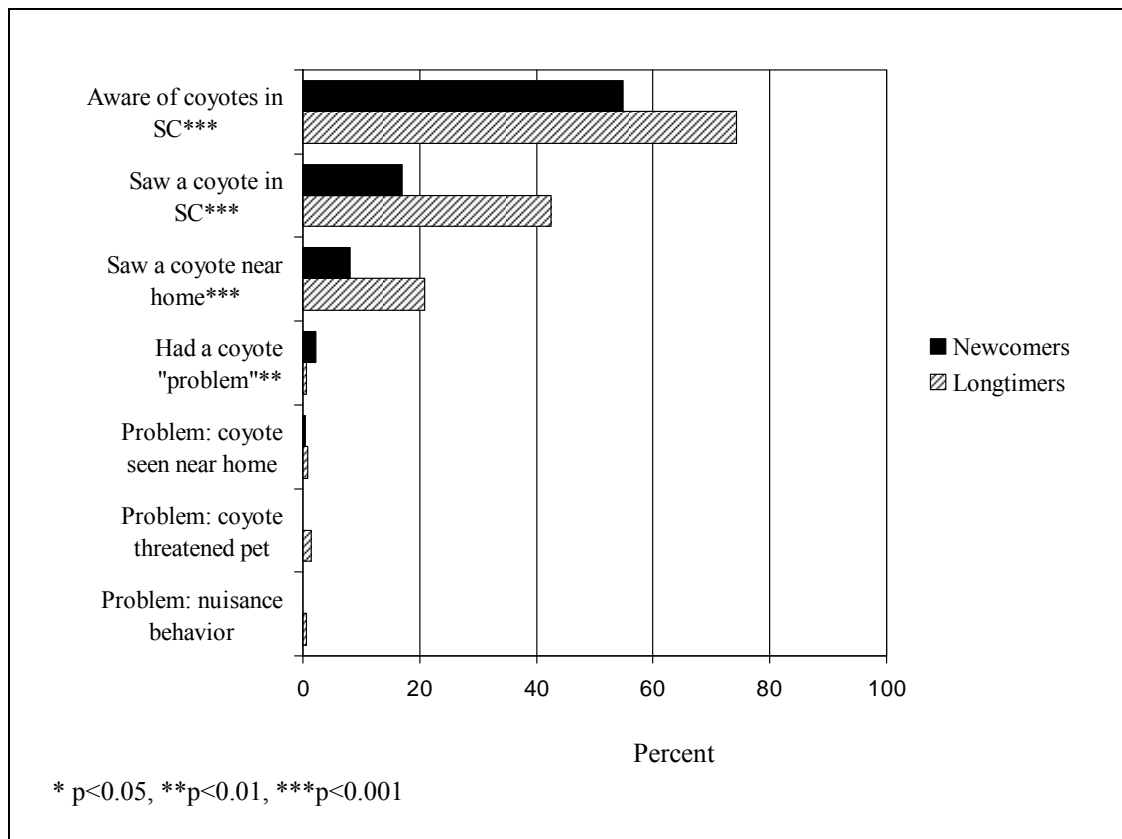
The mean age of respondents was 46 for newcomers and 56 for longtimers. Fifty-six percent of the sample was female. Newcomers to Saratoga County were more likely to have children 6 years of age or younger in the household (30% vs. 12%,  $\chi^2 = 63.24$ ,  $p < 0.001$ ). Sixty-three percent of respondents owned a dog and longtime residents were more likely to own a cat (64% vs. 53%,  $\chi^2 = 8.38$ ,  $p = 0.004$ ). Longtime county residents were also more likely to feed birds or other wildlife around their home (63% vs. 51%,  $\chi^2 = 20.62$ ,  $p < 0.001$ ) and to curb garbage the night before a pick up (66% vs. 58%,  $\chi^2 = 9.88$ ,  $p = 0.007$ ). Approximately 10% of respondents reported hunting in the past 5 years (Table 11). Half of respondents reported living in a suburban area, and about a quarter said they lived in an area outside of town with scattered houses (Table 12). Newcomers were more likely to live in a suburban area than longtime residents (58% vs. 49%,  $\chi^2 = 12.06$ ,  $p = 0.002$ ). The majority of respondents reported completing a four-year degree or graduate school, although about 20% had a high school degree or equivalent (Table 13).

### *Awareness and experiences with coyotes*

Approximately 21% of respondents reported growing up in an area where coyotes were present. More than half of respondents were aware of coyote presence in Saratoga County, and longtime residents were significantly more likely to be aware (74% vs. 55%,  $\chi^2 = 57.27$ ,  $p < 0.001$ ). Longtimers were also more likely to have seen a coyote in Saratoga County (43% vs. 17%,  $\chi^2 = 60.08$ ,  $p < 0.001$ ) and to have seen a coyote near their home (21% vs. 8%,  $\chi^2 = 46.47$ ,  $p < 0.001$ ). Similar to the Westchester County sample, problems with coyotes were minimal (around 2% of respondents; 5 newcomers and 16 longtimers), however when they experienced a problem, longtimers were more like to report the incident (1.8% vs. 0.6%,  $\chi^2 = 4.73$ ,  $p = 0.029$ ) (Figure 6, Table 14).

### *Attitudes toward coyotes*

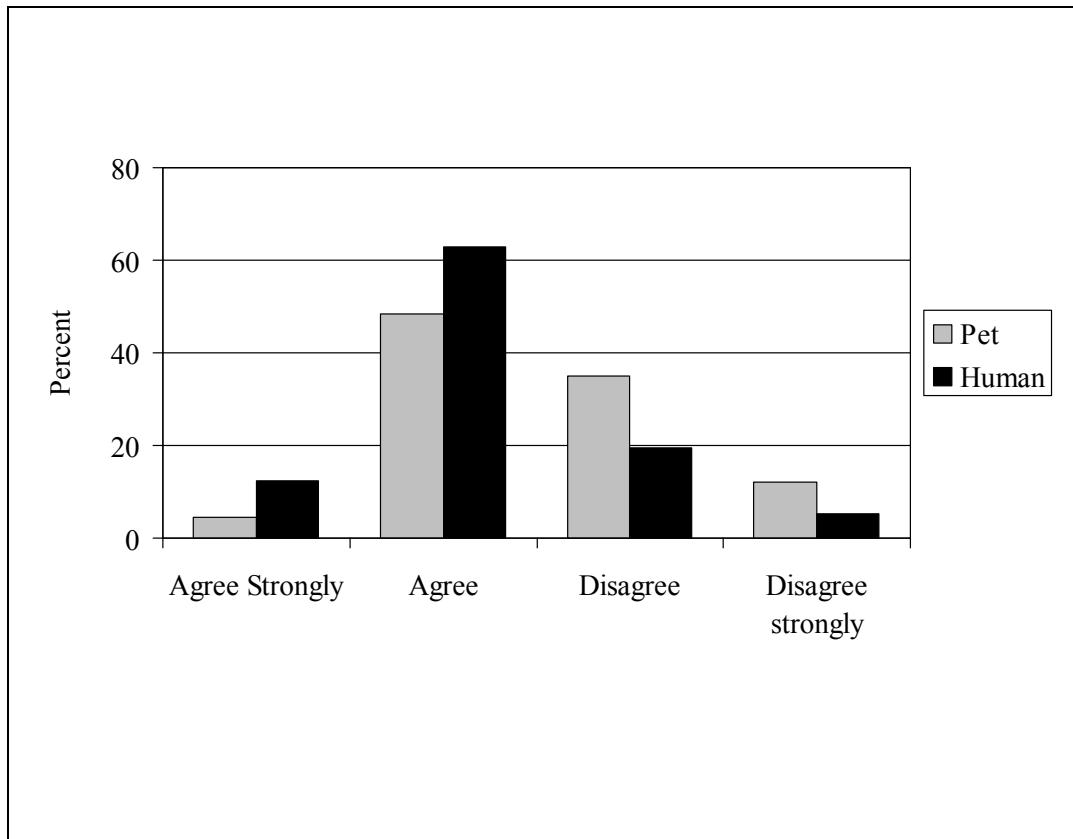
The measure of overall attitude toward coyotes (screening question) in the Saratoga County survey instrument was identical to the one used in the Westchester County survey. Similar to the Westchester County results, Saratoga County resident responses on the screening question were distributed relatively evenly across response categories (Table 15). A variation from the Westchester sample was the higher proportion of Saratoga County residents that reported they had no particular opinion about coyotes. Longtimers were more likely to regard coyotes as a nuisance (15% vs. 10%,  $\chi^2 = 9.49$ ,  $p = 0.002$ ) and less likely to be indifferent (31% vs. 37%,  $\chi^2 = 6.33$ ,  $p = 0.012$ ) than newcomers. Thirty-eight percent of respondents ( $n = 538$ ) indicated some concern about coyotes or regarded coyotes as a nuisance, and so were asked to complete an in-depth interview.



**Figure 6.** Awareness of and experiences with coyotes reported by respondents to the 2007 Saratoga County resident telephone survey, compared by tenure of residence in county (i.e., newcomers  $\leq 5$  years vs. longtimers  $\geq 21$  years).

*In-depth survey: Attitudes, risk perceptions, and tolerance for coyote presence*

Thirty-five percent of respondents who completed a full interview were pleased about coyote presence in their area, and 61% thought coyotes were a valuable part of the wildlife community (Table 16). Over half (53%) of the newcomers and longtimers thought the likelihood of injury to a pet by a coyote was acceptably low, and 75% thought the risk of coyotes injuring a human was acceptably low (Figure 7, Table 16). These positive evaluations notwithstanding, most newcomers and longtime residents harbored some concerns about coyote presence. On measures of concern about possible threats from coyotes, 83% of respondents were concerned about pets and 78% were concerned about children (Table 17). Longtimers were less likely to be concerned about coyote presence in general than newcomer residents (69% vs. 75%,  $\chi^2 = 9.56$ ,  $p = 0.023$ ).

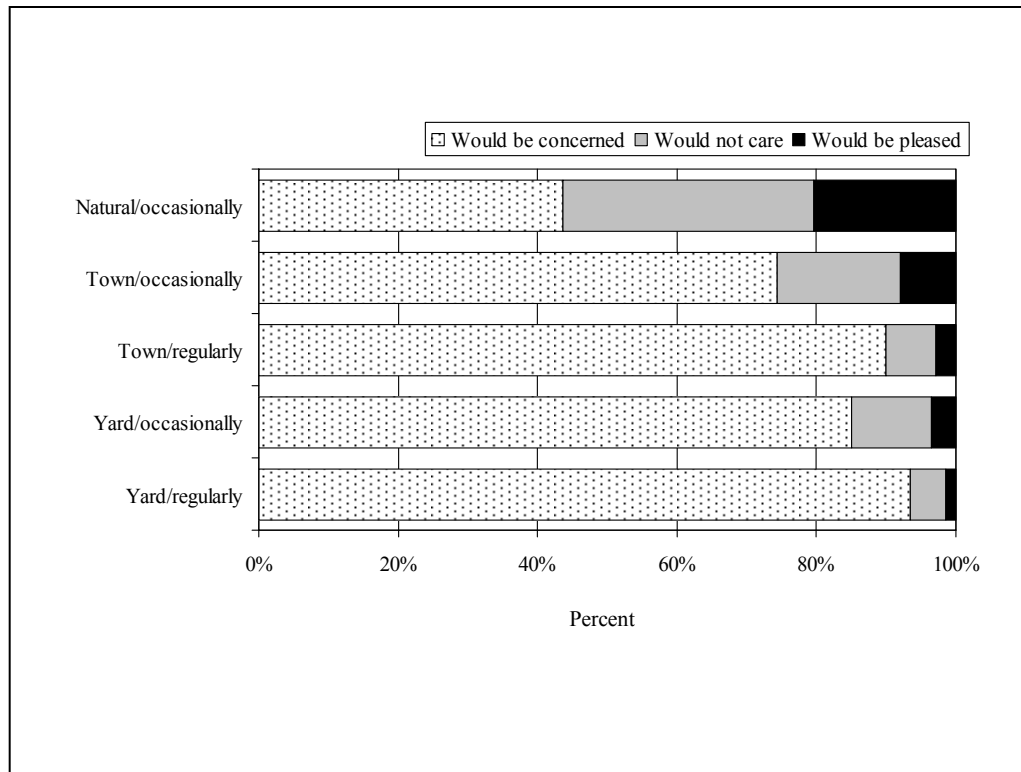


**Figure 7.** Agreement with statements that the likelihood that a pet or human will be injured by a coyote in Saratoga County is acceptably low.

We included measures to evaluate resident tolerance of coyotes based on different frequencies and proximities of coyote presence. The measures were identical to those used in the Westchester County survey. No differences were found on this series of measures between newcomer and longtimer residents in Saratoga County. Approximately 40% of respondents reported that they would be concerned if they occasionally observed coyotes in natural areas or green spaces (Figure 8, Table 18). In all other frequency and proximity scenarios, over 75% of respondents completing the in-depth questionnaire indicated concern.

#### *Social norms and behavioral intentions*

Respondents participating in the in-depth survey were asked a series of questions regarding their behavioral intentions and perceptions of social norms about coyotes. Questions focused on response to seeing a coyote near one's home; response options included behaviors ranging from actively encouraging coyote presence to actively deterring coyotes. The three measures sought a respondent's intended future behavior, what the respondent's friends and family believed the respondent should do and what the respondent believed other residents would do in response to coyote presence. No significant differences were found between



**Figure 8.** Percentage of Saratoga County telephone respondents who reported that they would be pleased, not care, or be concerned about hypothetical scenarios representing different proximities and frequencies of coyote presence.

newcomer and longtimer responses. Eighty percent of respondents indicated that they would not disturb the coyote if they saw one near their home in the future (Table 19). Around 12% of respondents indicated that they would engage in more active harassment and scare the coyote away and 6% indicated they would try to kill the coyote. Trends were similar for the social norm questions, indicating relatively high levels of passive response to coyotes. In these social norm measures, however, respondents believed that a higher percentage of “other residents” would scare or kill coyotes than they. Seventy-six percent of respondents believed it is sometimes justifiable to kill coyotes to protect pets in residential areas.

## Findings from comparison of longtime residents in Westchester and Saratoga counties

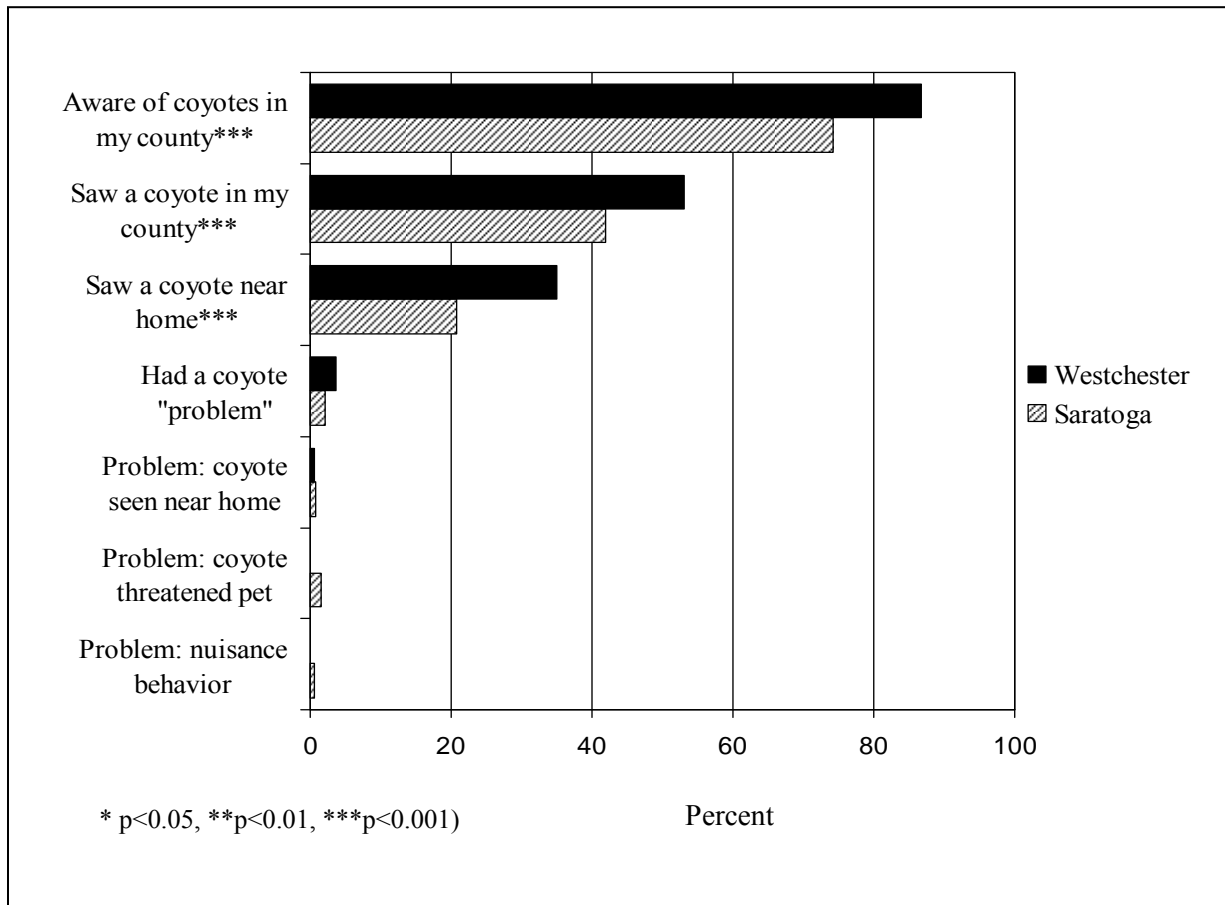
### *Respondent characteristics*

Longtime residents in Westchester County were less likely to have cats (24% vs. 35%,  $\chi^2 = 20.3$ ,  $p < 0.001$ ), feed birds or other wildlife (48% vs. 63%,  $\chi^2 = 34.37$ ,  $p < 0.001$ ), feed pets outdoors (8% vs. 14%,  $\chi^2 = 16.07$ ,  $p < 0.001$ ), curb garbage the night before a pickup (43% vs. 67%  $\chi^2 = 82.45$ ,  $p < 0.001$ ), or hunt (3% vs. 11%,  $\chi^2 = 29.94$ ,  $p < 0.001$ ) (Table 20). Approximately half of longtime residents from both counties were female. Saratoga residents were more likely to live in “a town or city” or to live in “an area outside of town” with “great

deal of green space” (Table 21). Respondents from both counties had relatively high levels of education; Westchester County residents were more likely to hold a graduate degree (Table 22).

#### *Awareness and experiences with coyotes*

Westchester County longtime residents were more aware of coyote presence (87% vs. 74%,  $\chi^2 = 37.54$ ,  $p < 0.001$ ) and more likely to have seen a coyote in the county (53% vs. 42%,  $\chi^2 = 17.59$ ,  $p < 0.001$ ) and near their house (35% vs. 21%,  $\chi^2 = 35.66$ ,  $p < 0.001$ ) (Figure 9, Table 23). There was no difference between residents in the two counties on problem occurrence (4% of longtime Westchester residents [ $n = 25$ ] and 2% of Saratoga residents [ $n = 16$ ]). Westchester longtime residents were, however, more likely to report a coyote-related problem to someone (6% vs. 2%,  $\chi^2 = 16.81$ ,  $p < 0.001$ ) (Table 23). Though small sample sizes preclude comparison across counties, raw numbers indicate that Westchester County residents were most likely to call the police with their questions/concerns (45%,  $n = 19$ ), whereas Saratoga residents were most likely to call an animal warden (38%,  $n = 5$ ) or DEC (23%,  $n = 3$ ).



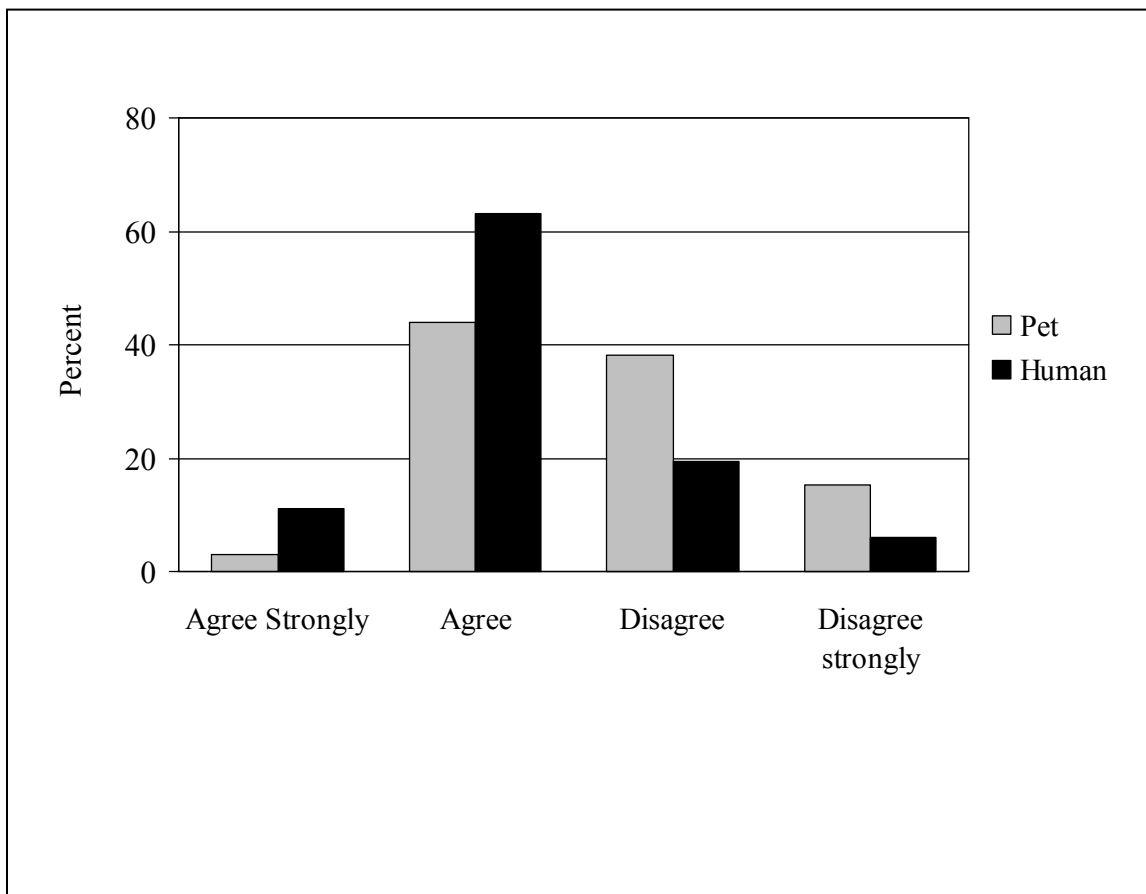
**Figure 9.** Awareness of and experiences with coyotes reported by longtime residents responding to the 2006 Westchester County and 2007 Saratoga County resident telephone surveys.

### *Attitudes toward coyotes*

Longtime residents in Saratoga County were more likely to have no opinion about coyotes in their county (31% vs. 20%) and less likely to regard coyotes as a nuisance (15% vs. 26%, %,  $\chi^2 = 22.14$ ,  $p < 0.001$ ) than longtime residents of Westchester County (Table 24).

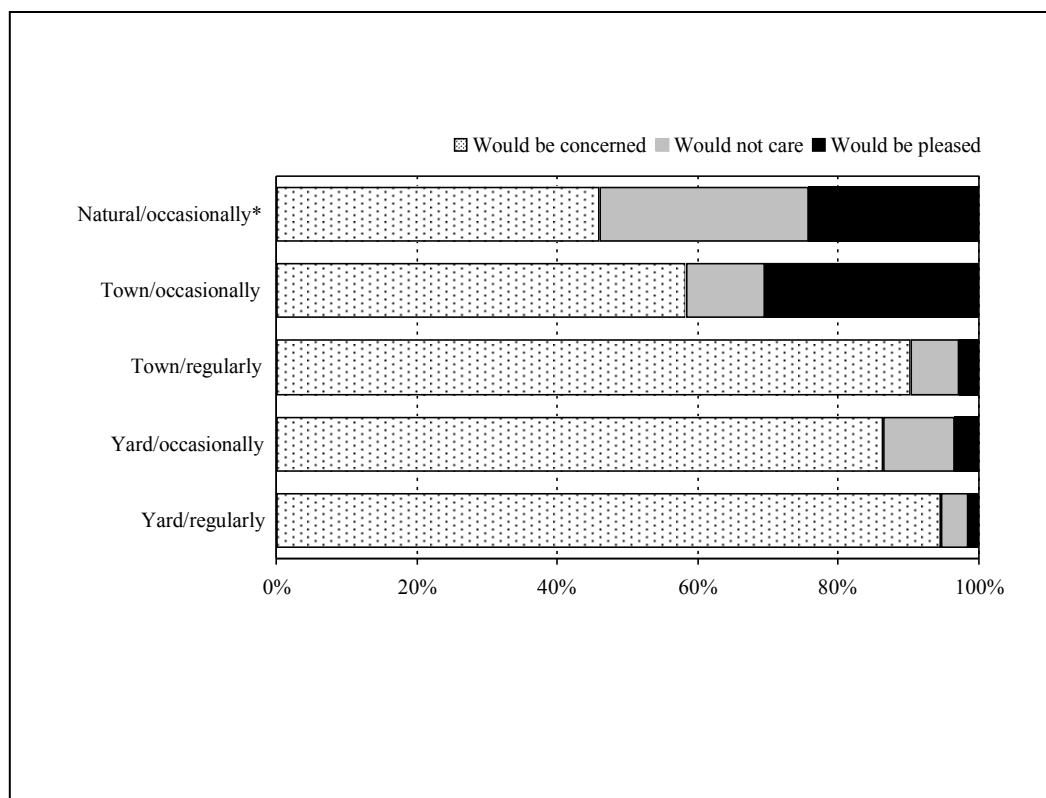
### *In-depth survey: Attitudes, risk perceptions, and tolerance for coyote presence*

No statistically significant differences were found between longtime residents in Westchester and Saratoga counties on the attitude and cognitive risk perception measures (Figure 10, Table 25). Even so, longtime residents of Westchester County expressed more concern about the threats coyotes might pose to pets or children (Table 26).



**Figure 10.** Agreement with statements that the likelihood that a pet or human will be injured by a coyote in resident's county is acceptably low as expressed by longtime residents in the 2006 Westchester County and 2007 Saratoga County telephone surveys.

Overall, longtime residents in the two counties expressed similar responses to hypothetical instances of coyote presence at different levels of frequency and proximity. In both counties, most longtime residents expressed some concern about interactions with coyotes in their town or in their yard (Figure 11, Table 27). The exception to this general pattern was that longtime residents in Saratoga County were more likely to be pleased or unconcerned about interactions with coyotes occasionally observed in natural areas (Table 27).



**Figure 11.** Percentage of longtime Westchester County and Saratoga County telephone respondents who reported that they would be pleased, not care, or be concerned about hypothetical scenarios representing different proximities and frequencies of coyote presence. Asterisk denotes a statistical difference between respondents from Westchester and Saratoga County at  $p < 0.05$ .

## DISCUSSION AND IMPLICATIONS

The purpose of the study was to conduct a situation analysis to begin to describe human-coyote relationships in suburban areas of NY. The DEC was seeking input to inform management decisions about coyotes. Several insights can be drawn from our data.

Preliminary inquiry demonstrated that key informants believed Westchester County residents were relatively unaware of coyotes in their county (see Wieczorek Hudenko et al. 2008a for details). The generally high level of awareness of coyote presence and sightings of



coyotes we found in this study, however, indicate that community members may be more cognizant of coyotes than originally anticipated. The Westchester County survey included a

measure that evaluated mechanisms for awareness. The survey data indicate that first-hand experience (hearing or seeing coyotes) was a major contributing factor to community awareness of coyote presence, although media coverage of coyote presence and coyote-related incidents also appears to influence awareness. The relatively low levels of problem occurrence, despite the high levels of observations of coyotes, is important to note. The DEC sought this inquiry because they have received an increasing number of incident reports about coyotes in recent years, especially from areas like Westchester County, yet our survey indicates that actual problems with coyotes may still occur at relatively low levels. The DEC's incident reports also include reports of sightings, so if sightings are high in the communities, as we found in the survey, then this may account for some of the reporting increase the DEC has noted. For instance, a lower proportion of Westchester County residents said they had experienced a problem with a coyote than those that said they had reported a coyote to some authority.

Data from the Westchester County survey suggest that community members have some positive attitudes about coyotes; over half of our respondents said they enjoyed coyotes to some extent and thought they were a valuable part of the wildlife in the area. Concern was also relatively high, however, as indicated by several other measures. Of particular interest was the disparity between risk acceptability and concern about potential threat. Nearly half of the Westchester County respondents who participated in the in-depth survey believed the potential risk to pets from coyotes was acceptably low and nearly three quarters thought the potential risk of injury to a human was acceptable. Nevertheless, around 85% expressed some concern about the possible threats coyotes pose to pets and children. For the DEC and community organizations interested in engaging in a communication initiative about coyotes in the county, these widespread concerns about the presence of coyotes in suburban landscapes may be an important topic to address. If problem occurrences are infrequent at this time, the level of the concern among community members may be driving the increase in incident reports. A communication message could focus on helping residents to have concerns about coyotes that are in line with the relative risk posed. The currently high levels of concern and interest in coyotes may also create an opportunity for the agency and organizations to address an attentive audience. Concern may motivate community residents to adopt suggested behaviors intended to help avoid problems with coyotes.

Given similarity of responses we received across studies in two different areas of the state, it is reasonable to assume, for now, that low level, but widespread concern about coyote presence may exist in the minds of stakeholders wherever coyotes are becoming established in the suburban landscapes of NY. Data from this study suggest that wildlife acceptance capacity for coyotes in suburban areas may be comparatively low, especially among stakeholders who have no direct, personal experience living in an area occupied by coyotes. While residents might be accepting of coyotes in natural areas, any movement outside those boundaries may create conflicts. In suburban landscapes, land-use patterns often necessitate coyote movement between patches of natural habitat interspersed in developed or residential areas. This type of situation, and the public's reaction, may create impacts that become management issues for parks and natural areas as well as local communities and the state wildlife agency.

Data in the Saratoga County survey were collected for newcomer and longtime residents in the county. Consequently, these respondents were not representative of a random sample of county residents in the same way the Westchester County respondents were. Individuals living in Saratoga County for 6-20 years were not represented. However, examination of the data reveals similar trends to those in the Westchester County survey that are worth considering. Awareness of coyote presence and sightings of coyotes among Saratoga County residents were relatively high and problem occurrence was low. We also found similar trends for attitude and risk perception measures; while about half of respondents expressed some positive attitudes and a majority were accepting of the possible risks posed by coyotes, most were concerned about possible impacts from coyote presence. Finally, a similar indication of a threshold of tolerance for coyotes was found in the frequency and proximity scenarios. These trends mimic those revealed in the Westchester County survey. The similarities in the findings from both counties suggest that our results may be applicable to other suburban areas of NY.

The Saratoga County survey also included an evaluation of behavioral intentions and social norms regarding encounters with coyotes near homes. Results indicate that around 80% of our respondents are not actively discouraging coyotes, but rather removing themselves from the situation or passively observing the coyote. Such a high percentage of agreement about intended behaviors may suggest that this is the current norm in the community. The fact that we did not find any differences between newcomer and longtimer residents lends further support for this idea. While 80% of residents might not intend to harass a coyote that comes near their home, the other 20% did plan to engage in more active deterrents, either scaring the coyote away or killing it. Given the lower number of problematic interactions reported by respondents, we might infer that this 15-25% level of “harassment” may be sufficient to avoid problems with coyotes in the community. That is, if one in five people encountering a coyote near their home makes an effort to deter it, this may help to maintain coyotes’ fear of humans/human spaces and prevent more problematic encounters.

The differences between sample groups we compared (north and south in Westchester County, newcomers and longtimers in Saratoga County, and longtime residents in Westchester and Saratoga counties) generally support the idea that with increased experience with coyotes, individuals tend to express increased positive attitudes, fewer concerns, and an inclination to “not care” or have “no opinion.” Northern Westchester County residents, longtime residents in Saratoga County, and Saratoga County longtime residents (vs. Westchester County) demonstrated the above tendencies on a variety of attitude and risk perception measures. While a few deviations from these trends did occur, these findings encouraged the research team to conduct a more in-depth evaluation of the possible influence of experience on attitudes and risk perceptions. Analysis of the data for these purposes is described in HDRU Series No. 08-8.

## **OPPORTUNITIES FOR FUTURE RESEARCH**

Although this research provides useful insights about attitudes and experiences of NY residents living in suburban areas occupied by coyotes, it was not designed to provide in-depth information on an important subgroup of residents—those who directly experience problem interactions with coyotes in a residential setting. It would be useful for future research to address

this important information need by focusing exclusively on individuals who have reported coyote-related “problems” to an authority (e.g., DEC, police, municipality, nuisance wildlife control operator). Such research could serve: (1) to identify commonalities in human behavior or attitudes in reported cases of negative human-coyote interactions in suburban areas; and (2) to estimate human attitude and behavior change (if any) associated with negative human-coyote encounters.

The scope of research on human-coyote interactions should expand to a statewide or multi-state effort to capture the level of detail (i.e., diverse experience types) necessary to learn more about the circumstances surrounding actual encounters between humans and coyotes in residential areas. It would be useful to document/reconstruct the situations leading to a reported problem and the evolution of the issue post-reporting. Such information would provide insight about follow-up actions taken by complainants after they contacted authorities and could identify how, or if, complainants modified their behavior after contacting authorities.

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## **Appendix A**

### **New York suburban coyote study stakeholder questionnaire (Westchester county)**

Attitudes about Coyotes in Westchester NY; October, 2006

My name is \_\_\_\_\_. I am calling on behalf of Cornell University. We're contacting **Westchester County** residents for a study about **attitudes towards coyotes**.

May I please talk to the adult who celebrated (his/her) birthday most recently?

As part of our effort to understand relationships between people and wildlife in Westchester County, I'd like to ask you a few questions about your opinions towards coyotes. Would you be willing to participate in an interview on this topic? Your participation is voluntary, the information you provide is confidential, and none of it will be released in any way that would permit the identification of you or your family. It would take 5 to 15 minutes for the interview, depending upon your experiences.

[1] yes, proceed

[2] interview declined

#### **1. About how many years have you lived in Westchester County?**

[1] Less than 1 year

[2] 1-5 years

[3] 6-10 years

[4] 11 + years

[8] don't know (Interviewer option: not offered as response option)

[9] refused to answer (Interviewer option: not offered as response option)

#### **2. Before I called you today, were you aware that coyotes live in New York State?**

[1] yes

[2] no --IF NO, SKIP TO QUESTION 12

[8] don't know (Interviewer option: not offered as response option)

[9] refused to answer (Interviewer option: not offered as response option)

#### **3. Were you aware that coyotes live in Westchester County?**

[1] yes

[2] no -- IF NO, SKIP TO QUESTION 12

[8] don't know -- SKIP TO QUESTION 12

[9] refused -- SKIP TO QUESTION 12

**4. Do you know about coyotes in Westchester County:**

- 4a. [1] yes [2] no **From news reports about coyotes**
- 4b. [1] yes [2] no **By talking with other people (like friends, family, neighbors)**
- 4c. [1] yes [2] no **Through personal experience (hearing or seeing a coyote)**
- 4d. [1] other \_\_\_\_\_

**5. Have you ever seen a coyote anywhere in Westchester County?**

- [1] yes
- [2] no -- IF NO, SKIP TO QUESTION 12
- [8] not sure -- IF NOT SURE, SKIP TO QUESTION 12
- [9] refused -- IF REFUSED, SKIP TO QUESTION 12

**6. How many times have you seen coyote/s in Westchester in the past 3 years?**

- [1] once or twice
- [2] a few times (3-4)
- [3] more than a few times/regularly

**7. Have you ever seen a coyote near your residence in Westchester County?**

- [1] yes
- [2] no
- [3] not sure
- [9] refused

**8. Have you ever had a problem with a coyote in New York?**

- [1] yes
- [2] no --IF NO, SKIP TO QUESTION 12
- [3] not sure --IF NOT SURE, SKIP TO QUESTION 12
- [9] refused --IF REFUSED, SKIP TO QUESTION 12

**9. What was the nature of the problem?** (Open-ended response; INTERVIEWER—CHOOSE MOST APPROPRIATE CATEGORIE(S))

- [1] coyote near home
- [2] coyote threatened a pet
- [3] coyote threatened an adult
- [4] coyote threatened a child
- [5] nuisance behavior (e.g., in garbage; at bird feeder; ate pet's food)
- [6] other \_\_\_\_\_

**10. Have you ever reported a coyote sighting or problem to some authority?**

- [1] yes
- [2] no -- IF NO, SKIP TO QUESTION 12

**11. Who did you call to report the coyote? (INTERVIEWER: PICK THE MOST RELEVANT CATEGORY.**

- [1] animal control, animal warden
- [2] the police department
- [3] the New York State Department of Environmental Conservation (DEC)
- [4] a person who specializes in removal of nuisance wildlife (e.g., pest/varmint control, nuisance wildlife control officer)
- [5] nature center or park
- [6] other (INTERVIEWER: PLEASE SPECIFY: \_\_\_\_\_)

**12. Which one of the following statements best describes your feelings toward coyotes in Westchester County?**

- [1] One, I enjoy knowing coyotes are around, AND I do NOT worry about problems coyotes may cause. **(SKIP TO QUESTION 30)**
- [2] Two, I enjoy knowing coyotes are around, BUT I worry about problems coyotes may cause. **(CONTINUE WITH FULL INTERVIEW)**
- [3] Three, I do not enjoy knowing coyotes are around and regard them as a nuisance. **(CONTINUE WITH FULL INTERVIEW)**
- [4] Or four, I have no particular opinions about coyotes in Westchester. **(SKIP TO QUESTION 30)**

**13. In general, how would you characterize your level of interest in coyotes?**

- [1] no interest
- [2] some interest
- [3] a great deal of interest

Now I'm going to read 6 statements about coyotes, and I'd like you to tell me whether you agree, disagree, or are unsure about each statement. Here is the first one...

(INTERVIEWER: FOR Q14 - Q19 ASK IF RESPONDENT AGREES, DISAGREES OR IS UNSURE. IF THEY AGREE OR DISAGREE, ASK FOLLOW-UP QUESTION --"DO YOU AGREE OR AGREE STRONGLY?" OR "DO YOU DISAGREE OR DISAGREE STRONGLY?"

**14. I am pleased that coyotes live in my area.**

- [1] agree strongly
- [2] agree
- [3] disagree
- [4] disagree strongly
- [3] unsure

**15. Coyotes are [an important part of the environment? OR ecologically beneficially] a valuable part of the wildlife community in my area.**

- [1] agree strongly
- [2] agree
- [3] disagree
- [4] disagree strongly
- [3] unsure

**16. I would like more information about coyotes living in my area.**

- [1] agree strongly
- [2] agree
- [3] disagree
- [4] disagree strongly
- [3] unsure

**17. I am concerned about the presence of coyotes in my area.**

- [1] agree strongly
- [2] agree
- [3] disagree
- [4] disagree strongly
- [3] unsure

**18."The likelihood that a pet will be injured by a coyote in Westchester County."**

- [1] agree strongly
- [2] agree
- [3] disagree
- [4] disagree strongly
- [3] unsure



**19. "The likelihood that a person in Westchester County will be injured by a coyote is acceptably low."**

- [1] agree strongly
- [2] agree
- [3] disagree
- [4] disagree strongly
- [3] unsure

**20. Have you ever been in a situation in Westchester County where you felt a pet might be injured by a coyote?**

- [1] yes [2] no **20b. What did you do? (open-ended)**

**21. Have you ever been in a situation in Westchester County where you felt you or a family member might be injured by a coyote?**

- [1] yes  
[2] no **21b. What did you do? (open-ended)**

**22. How would you describe your level of concern about the threat coyotes might present to pets in your area?**

- [1] no concern
- [2] some concern
- [3] a great deal of concern

**23. How would you describe your level of concern about the threat coyotes might present to small children in your area?**

- [1] no concern
- [2] some concern
- [3] a great deal of concern

I will now ask you a series of questions about coyote presence in various locations in Westchester County. Please choose the answer that best describes your feelings about each situation.

**24. If you occasionally observe coyotes in natural areas or green spaces within Westchester County, would you:**

- [1] be pleased
- [2] not care
- [3] be concerned

**25. If you occasionally observe coyotes within your town, would you**

- [1] be pleased
- [2] not care
- [3] be concerned

**26. If you regularly observe coyotes within your town would you**

- [1] be pleased
- [2] not care
- [3] be concerned

**27. If you regularly hear coyotes howling less than a mile from your home, would you**

- [1] be pleased
- [2] not care
- [3] be concerned

**28. If you occasionally observe coyotes passing through your backyard, would you**

- [1] be pleased
- [2] not care
- [3] be concerned

**29. If you regularly observe coyotes in your backyard, would you**

- [1] be pleased
- [2] not care
- [3] be concerned

Because we want to understand opinions from different people all across Westchester County, I would like to ask you a few questions that will help us learn whether people of different ages, neighborhoods, and so on have different opinions about coyotes.

**30. What was your age on your last birthday?**

- [8] refused question

**31. Which best describes the area where you live?**

- [1] A town or city with many people
- [2] A suburb with many people/houses and some green space
- [3] An area outside a town with scattered houses and lots of green space
- [8] refused question

**32. What is the highest year of school you have completed?**

- [1] Less than high school
- [2] Completed high school or GED
- [3] Vocational or trade school
- [4] some college
- [5] two-year degree
- [6] four-year degree
- [7] graduate school
- [8] refused question

**33. Do any children age 6 or younger live in your household?**

- [1] yes
- [2] no
- [8] refused question

**34. Is there a pet dog in your household?**

- [1] yes --IF YES, GO TO QUESTION 34b
- [2] no --IF NO, GO TO QUESTION 35
- [8] refused question

**34b. Is the dog less than 40 pounds?**

- [1] greater than 40lbs
- [2] less than 40lbs

**35. Is there a pet cat in your household?**

- [1] yes --IF YES, GO TO QUESTION 35b
- [2] no --IF NO, SKIP TO QUESTION 36
- [8] refused question

**35b. Does the cat spend any time outside?**

- [1] yes
- [2] no
- [8] refused question

**36. Do you own livestock or poultry?**

- [1] yes --IF YES, GO TO QUESTION 36b
- [2] no --IF NO, GO TO QUESTION 37
- [8] refused question

**36b. What types? [open ended]**

In which of the following activities do you regularly participate?

**37. Do you feed birds or other wildlife around your home?**

- [1] yes
- [2] no
- [8] refused question

**38. Do you watch wildlife around your home?**

- [1] yes
- [2] no
- [8] refused question

**39. Have you gone fishing in the past 5 years?**

- [1] yes
- [2] no
- [8] refused question

**40. Have you gone hunting in the past 5 years?**

- [1] yes
- [2] no
- [8] refused question

**41. Do you walk a dog in Westchester County?**

- [1] yes
- [2] no
- [8] refused question

**42. Do you feed a pet outdoors?**

- [1] yes
- [2] no
- [3] occasionally
- [8] refused question

**43. Do you place garbage cans at the curb the night before a scheduled weekly garbage pick-up?**

[1] yes

[2] no

[3] occasionally

[8] refused question

That concludes our survey. Thank you very much for your time and patience in answering these questions. Your answers will be kept strictly confidential.

**44. [DO NOT ASK] Sex of respondent [CIRCLE ONE]**

[1] male

[0] female

## Appendix B

### New York suburban coyote study stakeholder questionnaire (Saratoga county)

**1. About how many years have you lived in Saratoga County?** (INTERVIEWER: Let person respond, fill in year from 1 to 99) (\*NOTE: A tracking variable should be added at the end of the interview to track number of interviews completed with people who have lived in Saratoga for 5 or fewer years or 21 or more years.)

\_\_\_\_\_ (Valid range: 1-99)  
[9] refused to answer

**2. When you were growing up, did you live in an area where coyotes were present?**

[1] yes  
[2] no  
[8] don't know  
[9] refused to answer

**3. Before I called you today, were you aware that coyotes live in Saratoga County?**

[1] yes  
[2] no -- IF NO, SKIP TO QUESTION 13  
[8] don't know -- SKIP TO QUESTION 13  
[9] refused -- SKIP TO QUESTION 13

**4. Have you ever seen a coyote anywhere in Saratoga County?**

[1] yes  
[2] no -- IF NO, SKIP TO QUESTION 13  
[8] not sure -- IF NOT SURE, SKIP TO QUESTION 13  
[9] refused -- IF REFUSED, SKIP TO QUESTION 13

**5. How many times have you seen coyote/s in Saratoga County in the past 3 years?**

[1] once or twice  
[2] a few times (3-4)  
[3] more than a few times/regularly  
[8] not sure  
[9] refused

**6. Have you ever seen a coyote near your home in Saratoga County?**

- [1] yes
- [2] no           --IF NO, SKIP TO QUESTION 13
- [8] not sure    --IF NOT SURE, SKIP TO QUESTION 13
- [9] refused    --IF REFUSED, SKIP TO QUESTION 13

**7. The first time you saw a coyote near your home, what was your initial response to the situation?** (INTERVIEWER: Let person respond without any categories; place their open-ended response in one of the following categories. Provide the categories only if respondent needs clarification.)

- [1] Moved away from the with coyote / did not call anyone for assistance
- [2] Just observed the coyote, tried not to disturb the coyote
- [3] Tried to feed the coyote to attract and observe it
- [4] Tried to scare the coyote away
- [5] Tried to kill the coyote
- [6] Called someone to deal with the problem
- [7] other
- [8] don't recall
- [9] refused to answer

**8. Have you ever had a problem with a coyote near your home in Saratoga County?**

- [1] yes
- [2] no           --IF NO, SKIP TO QUESTION 11
- [8] not sure    --IF NOT SURE, SKIP TO QUESTION 11
- [9] refused    --IF REFUSED, SKIP TO QUESTION 11

**9. What was the nature of the problem?** (Open-ended response; INTERVIEWER—CHOOSE MOST APPROPRIATE CATEGORIE(S))

- [1] just saw a coyote near my home
- [2] coyote threatened a pet
- [3] coyote threatened an adult
- [4] coyote threatened a child
- [5] nuisance behavior (e.g., in garbage; at bird feeder; ate pet's food)
- [6] other \_\_\_\_\_
- [9] refused to answer

**10. When you had the problem, what was your initial response?**

(INTERVIEWER: Let person respond without any categories; place their open-ended response in one of the following categories. Provide the categories only if respondent needs clarification.)

- [1] Moved away from the with coyote / did not call anyone for assistance
- [2] Just observed the coyote, tried not to disturb the coyote
- [3] Tried to feed the coyote to attract and observe it
- [4] Tried to scare the coyote away
- [5] Tried to kill the coyote
- [6] Called someone to deal with the problem
- [7] other
- [8] don't recall
- [9] refused to answer

**11. Have you ever reported a coyote sighting or problem to some authority?**

- [1] yes
- [2] no --IF NO, SKIP TO QUESTION 13
- [9] refused --IF REFUSED, SKIP TO QUESTION 13

**12. Who did you call to report the coyote? (INTERVIEWER: PICK THE MOST RELEVANT CATEGORY.)**

- [1] animal control, animal warden
- [2] the police department
- [3] the New York State Department of Environmental Conservation (DEC), the Conservation Department, Game Warden, etc.
- [4] a person who specializes in removal of nuisance wildlife (e.g., pest/varmint control, nuisance wildlife control officer)
- [5] nature center or park
- [6] other (INTERVIEWER: PLEASE SPECIFY: \_\_\_\_\_)
- [9] refused to answer

**13. Which one of the following statements best describes your feelings about coyotes in Saratoga County?**

- [1] One, I enjoy knowing coyotes are around, AND I do NOT worry about problems coyotes may cause. **(SKIP TO QUESTION 32)**
- [2] Two, I enjoy knowing coyotes are around, BUT I worry about problems coyotes may cause. **(CONTINUE WITH FULL INTERVIEW)**
- [3] Three, I do not enjoy knowing coyotes are around and regard them as a nuisance. **(CONTINUE WITH FULL INTERVIEW)**
- [4] Or four, I have no particular opinions about coyotes in Saratoga. **(SKIP TO QUESTION 32)**
- [9] refused to answer

Now I'm going to read 5 statements about coyotes, and I'd like you to tell me whether you agree, disagree, or are unsure about each statement. Here is the first one...



**14. I am pleased that coyotes live in my area.**

- [1] agree strongly
- [2] agree
- [3] disagree
- [4] disagree strongly
- [8] unsure
- [9] refused to answer

**15. Coyotes are a valuable part of the wildlife that live in my area.**

- [1] agree strongly
- [2] agree
- [3] disagree
- [4] disagree strongly
- [8] unsure
- [9] refused to answer

**16. I am concerned about the presence of coyotes in my area.**

- [1] agree strongly
- [2] agree
- [3] disagree
- [4] disagree strongly
- [8] unsure
- [9] refused to answer

**17. The likelihood that a pet will be injured by a coyote in Saratoga County acceptably low.**

- [1] agree strongly
- [2] agree
- [3] disagree
- [4] disagree strongly
- [8] unsure
- [9] refused to answer

**18. The likelihood that a person in Saratoga County will be injured by a coyote is acceptably low.**

- [1] agree strongly
- [2] agree
- [3] disagree
- [4] disagree strongly
- [8] unsure
- [9] refused to answer

**19. Have you ever been in a situation in Saratoga County where you felt a pet might be harmed by a coyote?**

- [1] yes → if yes, go to 19b
- [2] no → skip to item 20
- [9] refused to answer → skip to item 20

**19b. In that situation, did you simply avoid the coyote, or did you take actions to scare the coyote away?**

- [1] tried to avoid the coyote
- [2] tried to scare the coyote away
- [3] don't know
- [9] refused to answer

**20. Have you ever been in a situation in Saratoga County where you felt you or a family member might be harmed by a coyote?**

- [1] yes → if yes, go to 20b
- [2] no → skip to item 21
- [9] refused to answer → skip to item 21

**20b. In that situation, did you simply avoid the coyote, or did you take actions to scare the coyote away?**

- [1] tried not to disturb the coyote
- [2] tried to scare the coyote away
- [3] don't know
- [9] refused to answer

**21. How would you describe your level of concern about the threat coyotes might present to pets in your area?**

- [1] no concern
- [2] some concern
- [3] a great deal of concern
- [9] refused to answer

**22. How would you describe your level of concern about the threat coyotes might present to small children in your area?**

- [1] no concern
- [2] some concern
- [3] a great deal of concern
- [9] refused to answer

I will now ask you a series of questions about coyote presence in various locations in Saratoga County. Please choose the answer that best describes your feelings about each situation.

**23. If you occasionally observe coyotes in natural areas or green spaces within Saratoga County, would you:**

- [1] be pleased
- [2] not care
- [3] be concerned
- [9] refused to answer

**24. If you occasionally observe coyotes within your town, would you:**

- [1] be pleased
- [2] not care
- [3] be concerned
- [9] refused to answer

**25. If you regularly observe coyotes within your town would you:**

- [1] be pleased
- [2] not care
- [3] be concerned
- [9] refused to answer

**26. If you occasionally observe coyotes passing through your backyard, would you:**

- [1] be pleased
- [2] not care
- [3] be concerned
- [9] refused to answer

**27. If you regularly observe coyotes in your backyard, would you:**

- [1] be pleased
- [2] not care
- [3] be concerned
- [9] refused to answer

**Now I have three related questions that focus on future behavior. Here is the first one.**

**28. How do you think you will respond if you see a coyote near your home sometime in the future? Are you most likely to:**

- [1] Move away from the coyote
- [2] Watch the coyote without disturbing it
- [3] Feed the coyote
- [4] Scare the coyote away
- [5] Kill the coyote
- [8] I don't know
- [9] refused to answer

**29. How do your friends and family think you should behave if you see a coyote near your home? Do they think you should:**

- [1] Move away from the coyote
- [2] Watch the coyote without disturbing it
- [3] Feed the coyote
- [4] Scare the coyote away
- [5] Kill the coyote
- [8] I don't know
- [9] refused to answer

**30. In your county, how do you think most residents would behave if they saw a coyote near their home? Would most of them:**

- [1] Move away from the coyote
- [2] Watch the coyote without disturbing it
- [3] Feed the coyote
- [4] Scare the coyote away
- [5] Kill the coyote
- [8] I don't know
- [9] refused to answer

**31. Do you believe that it is sometimes justifiable to kill individual coyotes to protect pets in residential areas.**

- [1] yes
- [2] no
- [8] not sure
- [9] refused to answer

Because we want to understand opinions from different people all across Saratoga County, I would like to ask you a few questions that will help us learn whether people of different ages, neighborhoods, and so on have different opinions about coyotes.

**32. What was your age on your last birthday?**

\_\_\_\_ (Valid range: 18 -99)  
[9] refused to answer

**33. Which best describes the area where you live?**

- [1] A town or city with many people
- [2] A suburb with many people/houses and some green space
- [3] An area outside a town with scattered houses and a great deal of green space
- [9] refused to answer

**34. What is the highest year of school you have completed?**

- [1] Less than high school
- [2] Completed high school or GED
- [3] Vocational or trade school
- [4] some college
- [5] two-year degree
- [6] four-year degree
- [7] graduate school
- [9] refused to answer

**35. Do any children age 6 or younger live in your household?**

- [1] yes
- [2] no
- [9] refused to answer

**36. Does anyone in your household keep dogs, cats, or livestock animals?**

- [1] yes           --IF YES, GO TO QUESTION 37a
- [2] no            --IF NO, GO TO QUESTION 38
- [9] refused to answer

INTERVIEWER: Check yes for all animal types the respondent mentions (do not count indoor pets other than dogs and cats)

**37a. Dog(s)**

- [1] yes
- [2] no

**37b. Cat(s)**

- [1] yes
- [2] no

**37c. Horses or llamas**

- [1] yes
- [2] no

**37d. Small livestock (e.g., chickens, rabbits)**

- [1] yes
- [2] no

**38. Do you feed birds or other wildlife around your home?**

- [1] yes
- [2] no
- [9] refused to answer

**39. Do you feed a pet outdoors?**

- [1] yes
- [2] no
- [3] occasionally
- [9] refused to answer

**40. Do you place garbage cans at the curb the night before a scheduled weekly garbage pick-up?**

- [1] yes
- [2] no
- [3] occasionally
- [9] refused to answer

**41. Have you gone hunting in the past 5 years?**

- [1] yes
- [2] no
- [9] refused to answer

That concludes our survey. Thank you very much for your time and patience in answering these questions. Your answers will be kept strictly confidential.

**42. [DO NOT ASK] Sex of respondent [CIRCLE ONE]**

- [1] male
- [0] female

**Appendix C**  
**Results tables**

**Table 1.** Summary of Survey Research Institute contacts with members of the sample group during the 2006 Westchester County resident telephone survey.

| <b>Final outcome of contacts<br/>with residents</b>          | <b>Northern area<br/>(Somers and<br/>Yorktown<br/>townships)</b> | <b>Southern area<br/>(Mount Pleasant<br/>and Greenberg<br/>townships)</b> | <b>Total</b> |
|--|--|---|--------------|
| Completed survey (Total)                                     | 580  | 580   | 1160         |
| Completed survey (In-depth)                                  | <b>287</b>   | <b>310</b>  | 597          |
| Completed survey (Short)                                     | <b>293</b>   | <b>270</b>  | 563          |
| Bad telephone number   | 224  | 259   | 483          |
| Ill; Incapable of responding; Deceased                       | 22   | 6   | 28           |
| Language barrier   | 27   | 49  | 76           |
| Ineligible (under 18)  | 0  | 0   | 0            |
| Refused  | 110  | 60  | 170          |
| Pending (resident not reached after one<br>or more attempts) | 2037   | 1445  | 3482         |
| Total  | 3000   | 2399  | 5399         |

**Table 2.** Summary of Survey Research Institute contacts with members of the sample group during the 2007 Saratoga County resident telephone survey.

| <b>Outcome</b>  | <b>New<br/>Residents</b> | <b>Longtime<br/>Residents</b> | <b>Total</b> |
|---|--------------------------|-------------------------------|--------------|
| Completed survey (Total)  | 705                      | 733                           | 1438         |
| Completed survey (In-depth)   | <b>250</b>               | <b>290</b>                    | 540          |
| Completed survey (Short)  | <b>455</b>               | <b>443</b>                    | 898          |
| Bad telephone number  | Unknown                  |                               | 802          |
| Ill; Incapable of responding; Deceased  |                          |                               | 29           |
| Language barrier  |                          |                               | 15           |
| Ineligible (under 18; not Saratoga County resident;<br>resident for 6-20 years) |                          |                               | 657          |
| Refused   |                          |                               | 286          |
| Pending (resident not reached after one or more<br>attempts)                    |                          |                               | 2273         |
| Total   |                          |                               | 5500         |



**Table 3.** Personal characteristics reported by northern and southern study area residents in the 2006 Westchester County resident telephone survey.

| <u>Respondent characteristics</u>        | Study area | n   | % with characteristic | $\chi^2$ | p-value |
|--|------------|-----|-----------------------|----------|---------|
| Children $\leq 6$ years old in household | North      | 575 | 17.6                  | 1.49     | 0.221   |
|  | South      | 577 | 14.9                  |          |         |
| Type of pet: dog                         | North      | 577 | 32.6                  | 3.93     | 0.047   |
|  | South      | 580 | 27.2                  |          |         |
| Type of pet: cat                         | North      | 577 | 26.7                  | 4.17     | 0.041   |
|  | South      | 580 | 21.6                  |          |         |
| Type of pet: outdoor cat                 | North      | 577 | 14.7                  | 8.84     | 0.002   |
|  | South      | 580 | 8.4                   |          |         |
| Feed birds or other wildlife             | North      | 576 | 48.3                  | 12.41    | <0.001  |
|  | South      | 579 | 38.0                  |          |         |
| Feed pets outdoors                       | North      | 578 | 5.7                   | 2.41     | 0.299   |
|  | South      | 580 | 4.5                   |          |         |
| Curb garbage night before pickup         | North      | 573 | 42.1                  | 2.07     | 0.355   |
|  | South      | 577 | 38.0                  |          |         |
| Have gone hunting in past 5 years        | North      | 578 | 4.3                   | 1.61     | 0.204   |
|  | South      | 580 | 2.9                   |          |         |
| Gender: female                           | North      | 580 | 52.2                  | 1.25     | 0.263   |
|  | South      | 580 | 55.5                  |          |         |

**Table 4.** Best description of the area where respondent lives, reported by respondents to the 2006 Westchester County resident telephone survey.

| <u>Area description</u>  | Study area       |                         | Total<br>(n=1153) |
|--|------------------|-------------------------|-------------------|
|  | North<br>(n=576) | South<br>(n=577)<br>(%) |                   |
| A town or city with many people.   | 7.8              | 12.7                    | 10.2              |
| A suburb with many people/houses and some green space.                         | 55.4             | 71.8                    | 63.6              |
| An area outside of town with scattered houses and a great deal of green space. | 36.8             | 15.6                    | 26.2              |
| Total  | 100.0            | 100.0                   | 100.0             |

---

$\chi^2 = 2.03$ ; df = 2; p = 0.361

**Table 5.** Highest level of education reported by respondents to the 2006 Westchester County resident telephone survey.

| <u>Highest level of education</u> | Study area       |                         | Total<br>(n=1137) |
|-----------------------------------|------------------|-------------------------|-------------------|
|                                   | North<br>(n=564) | South<br>(n=573)<br>(%) |                   |
| Less than high school             | 0.7              | 0.9                     | 0.8               |
| Completed high school or GED      | 15.4             | 9.2                     | 12.3              |
| Vocational or trade school        | 1.2              | 0.5                     | 0.9               |
| Some college                      | 10.1             | 7.9                     | 9.0               |
| Two-year degree                   | 9.8              | 5.8                     | 7.7               |
| Four-year degree                  | 27.8             | 29.7                    | 28.8              |
| Graduate school                   | 34.9             | 46.1                    | 40.5              |
| Total                             | 100.0            | 100.0                   | 100.0             |

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$\chi^2 = 27.06$ ; df = 6; p < 0.001

**Table 6.** Awareness of and experiences with coyotes as reported by respondents in two study areas for the 2006 Westchester County resident telephone survey.

| <u>Awareness and experience measures</u>              | Study area | n   | % with characteristic | $\chi^2$ | p-value |
|---|------------|-----|-----------------------|----------|---------|
| Aware of coyotes in NY                                | North      | 580 | 94.7                  | 3.66     | 0.056   |
|   | South      | 580 | 92.1                  |          |         |
| Aware of coyotes in Westchester                       | North      | 580 | 86.4                  | 2.17     | 0.140   |
|   | South      | 580 | 83.4                  |          |         |
| Source: news reports about coyotes                    | North      | 580 | 61.4                  | 22.93    | <0.001  |
|   | South      | 580 | 75.7                  |          |         |
| Source: interpersonal communication                   | North      | 580 | 71.1                  | 3.26     | 0.071   |
|   | South      | 580 | 65.7                  |          |         |
| Source: personal experience                           | North      | 580 | 66.6                  | 9.72     | 0.002   |
|   | South      | 580 | 56.9                  |          |         |
| Source: other   | North      | 580 | 4.0                   | 0.88     | 0.348   |
|   | South      | 580 | 2.9                   |          |         |
| Seen coyotes in Westchester County                    | North      | 580 | 56.6                  | 11.61    | <0.001  |
|   | South      | 580 | 46.6                  |          |         |
| Seen coyotes near their home                          | North      | 580 | 37.9                  | 3.62     | 0.057   |
|   | South      | 580 | 32.6                  |          |         |
| Had a problem with a coyote in NY                     | North      | 580 | 4.5                   | 1.51     | 0.218   |
|   | South      | 580 | 3.1                   |          |         |
| Reported a problem with or sighting of a coyote in NY | North      | 580 | 4.3                   | 3.66     | 0.054   |
|   | South      | 580 | 6.8                   |          |         |

**Table 7.** Attitudes toward coyotes expressed by all respondents to the 2006 Westchester County resident telephone survey.

| <u>Attitude response categories</u>   | Study area       |                         | Total<br>(n=1149) |
|---|------------------|-------------------------|-------------------|
|   | North<br>(n=575) | South<br>(n=574)<br>(%) |                   |
| I enjoy knowing coyotes are around, AND I do not worry about problems they may cause. | 30.7             | 24.0                    | 27.3              |
| I enjoy knowing coyotes are around, BUT I worry about problems they may cause.        | 27.1             | 26.7                    | 26.9              |
| I do not enjoy knowing coyotes are around and I regard them as a nuisance.            | 21.9             | 26.3                    | 24.1              |
| I have no particular opinions about coyotes in Westchester County.                    | 20.3             | 23.0                    | 21.7              |
| Total   | 100.0            | 100.0                   | 100.0             |

$$\chi^2 = 7.78; p = 0.051$$

**Table 8.** Attitudes about coyotes and perceptions of coyote-related risks expressed by respondents in two study areas for the 2006 Westchester County resident telephone survey.

| <u>Attitude measures</u>  | Study<br>area | n   | Agree | Disagree | $\chi^2$ | p-value |
|---|---------------|-----|-------|----------|----------|---------|
|   |               |     | (%)   |          |          |         |
| I am pleased that coyotes live in my area.  | North         | 271 | 32.5  | 67.5     | 9.42     | 0.002   |
|   | South         | 286 | 21.0  | 79.0     |          |         |
| Coyotes are a valuable part of the community.   | North         | 256 | 57.4  | 42.6     | 1.88     | 0.170   |
|   | South         | 272 | 51.5  | 48.5     |          |         |
| I would like more information about coyotes living in my area.                                    | North         | 274 | 62.4  | 37.6     | 0.08     | 0.768   |
|   | South         | 294 | 63.6  | 36.4     |          |         |
| I am concerned about the presence of coyotes in my area.  | North         | 277 | 75.1  | 24.9     | 1.42     | 0.232   |
|   | South         | 299 | 79.3  | 20.7     |          |         |
| <u>Cognitive risk measures</u>  |               |     |       |          |          |         |
| The likelihood that a pet will be injured by a coyote in Westchester County is acceptably low.    | North         | 245 | 46.9  | 53.1     | 1.84     | 0.174   |
|   | South         | 259 | 40.9  | 59.1     |          |         |
| The likelihood that a person will be injured by a coyote in Westchester County is acceptably low. | North         | 256 | 72.3  | 27.7     | 0.53     | 0.465   |
|   | South         | 271 | 69.4  | 30.6     |          |         |

**Table 9.** Perceptions of coyote-related risks expressed by respondents in two study areas for the 2006 Westchester County resident telephone survey.

| <u>Affective risk measures</u>  | Study area | n   | Level of concern |          |            | $\chi^2$ | p-value |
|---|------------|-----|------------------|----------|------------|----------|---------|
|   |            |     | None             | Some (%) | Great deal |          |         |
| How would you describe your level of concern about the threat coyotes might present to pets in your area?           | North      | 281 | 13.2             | 61.2     | 25.6       | 3.42     | 0.181   |
|   | South      | 303 | 17.8             | 54.5     | 27.7       |          |         |
| How would you describe your level of concern about the threat coyotes might present to small children in your area? | North      | 281 | 13.2             | 49.8     | 37.0       | 0.22     | 0.895   |
|   | South      | 298 | 14.1             | 48.0     | 37.9       |          |         |

**Table 10.** Response to hypothetical coyote presence scenarios as expressed by respondents in the 2006 Westchester County resident telephone survey.

| <u>Coyote presence scenario</u>  | Study area | n   | Be pleased | Not care (%) | Be concerned | $\chi^2$ | p-value |
|--|------------|-----|------------|--------------|--------------|----------|---------|
| If you <u>occasionally</u> observe coyotes in <u>natural areas or green spaces</u> within Westchester County, would you: | North      | 281 | 31.7       | 28.8         | 39.5         | 3.48     | 0.175   |
|  | South      | 302 | 28.8       | 24.2         | 47.0         |          |         |
| If you <u>occasionally</u> observe coyotes <u>within your town</u> would you:  | North      | 280 | 8.2        | 16.4         | 75.4         | 12.29    | 0.002   |
|  | South      | 303 | 7.6        | 7.3          | 85.1         |          |         |
| If you <u>regularly</u> observe coyotes <u>within your town</u> would you:   | North      | 281 | 2.5        | 7.8          | 89.7         | 5.34     | 0.069   |
|  | South      | 304 | 3.6        | 3.6          | 92.8         |          |         |
| If you regularly hear coyotes howling less than a mile from your home, would you:  | North      | 282 | 7.8        | 23.4         | 68.8         | 18.22    | <0.001  |
|  | South      | 305 | 7.2        | 10.5         | 82.3         |          |         |
| If you <u>occasionally</u> observe coyotes passing through <u>your backyard</u> would you:                               | North      | 282 | 3.9        | 11.3         | 84.8         | 6.47     | 0.039   |
|  | South      | 303 | 5.0        | 5.6          | 89.4         |          |         |
| If you <u>regularly</u> observe coyotes in <u>your backyard</u> , would you:   | North      | 268 | 1.4        | 3.2          | 95.4         | 1.03     | 0.597   |
|  | South      | 290 | 2.3        | 2.3          | 95.4         |          |         |



**Table 11.** Personal characteristics reported by newcomers ( $\leq 5$  years residence) and longtime residents ( $\geq 21$  years residence) in the 2007 Saratoga County resident telephone survey.

| <u>Respondent characteristics</u>        | Years in<br>county    | n          | % with<br>characteristic | $\chi^2$ | p-value |
|--|-----------------------|------------|--------------------------|----------|---------|
| Children $\leq 6$ years old in household | $\leq 5$<br>$\geq 21$ | 702<br>720 | 28.9<br>11.9             | 63.23    | <0.001  |
| Some type of animals in household        | $\leq 5$<br>$\geq 21$ | 705<br>720 | 52.9<br>55.0             | 0.62     | 0.428   |
| Type of pet: dog                         | $\leq 5$<br>$\geq 21$ | 373<br>396 | 64.3<br>62.1             | 0.40     | 0.523   |
| Type of pet: cat                         | $\leq 5$<br>$\geq 21$ | 373<br>396 | 53.4<br>63.6             | 8.37     | 0.004   |
| Horses or llama kept                     | $\leq 5$<br>$\geq 21$ | 373<br>396 | 2.4<br>4.3               | 2.07     | 0.149   |
| Small livestock kept                     | $\leq 5$<br>$\geq 21$ | 373<br>396 | 3.5<br>6.3               | 3.27     | 0.071   |
| Feed birds or other wildlife             | $\leq 5$<br>$\geq 21$ | 705<br>721 | 51.1<br>63.0             | 20.61    | <0.001  |
| Feed pets outdoors                       | $\leq 5$<br>$\geq 21$ | 701<br>719 | 9.1<br>11.3              | 2.58     | 0.274   |
| Curb garbage night before pickup         | $\leq 5$<br>$\geq 21$ | 702<br>719 | 57.5<br>65.6             | 9.88     | 0.007   |
| Have gone hunting in past 5 years        | $\leq 5$<br>$\geq 21$ | 705<br>720 | 8.4<br>11.0              | 2.76     | 0.097   |
| Gender: female                           | $\leq 5$<br>$\geq 21$ | 705<br>720 | 55.5<br>56.8             | 0.26     | 0.609   |

**Table 12.** Best description of the area where respondent lives, reported by respondents in the 2007 Saratoga County resident telephone survey.

| <u>Area descriptions</u>   | Years in county |                | Total<br>(n=1421) |
|--|-----------------|----------------|-------------------|
|  | ≤5<br>(n=701)   | ≥21<br>(n=720) |                   |
|  | (%)             |                |                   |
| A town or city with many people.   | 15.0            | 19.4           | 17.2              |
| A suburb with many people/houses and some green space.                         | 58.2            | 49.2           | 53.6              |
| An area outside of town with scattered houses and a great deal of green space. | 26.8            | 31.4           | 29.1              |
| Total  | 100.0           | 100.0          | 100.0             |

$$\chi^2 = 12.06; df = 2; p = 0.002$$

**Table 13.** Highest level of education reported by respondents in the 2007 Saratoga County resident telephone survey.

| Highest level of education   | Years in county |                       | Total<br>(n=1422) |
|------------------------------|-----------------|-----------------------|-------------------|
|                              | ≤5<br>(n=704)   | ≥21<br>(n=718)<br>(%) |                   |
| Less than high school        | 2.7             | 3.2                   | 3.0               |
| Completed high school or GED | 13.5            | 26.3                  | 20.0              |
| Vocational or trade school   | 1.1             | 2.6                   | 1.9               |
| Some college                 | 11.1            | 12.4                  | 11.7              |
| Two-year degree              | 9.8             | 13.4                  | 11.6              |
| Four-year degree             | 33.8            | 23.5                  | 28.6              |
| Graduate school              | 28.0            | 18.5                  | 23.2              |
| Total                        | 100.0           | 100.0                 | 100.0             |

$\chi^2 = 65.09$ ; df = 6; p < 0.001

**Table 14.** Awareness of and experiences with coyotes as reported by newcomers and longtime residents in the 2007 Saratoga County resident telephone survey.

| <u>Awareness and experience measures</u>    | Years in<br>county    | n          | % with<br>characterisitc | $\chi^2$ | p-value |
|---|-----------------------|------------|--------------------------|----------|---------|
| Grew up in an area with coyotes             | $\leq 5$<br>$\geq 21$ | 689<br>701 | 21.0<br>21.5             | 0.05     | 0.821   |
| Were aware of coyotes in Saratoga<br>County | $\leq 5$<br>$\geq 21$ | 703<br>718 | 54.9<br>74.2             | 57.27    | <0.001  |
| Had seen a coyote in Saratoga County        | $\leq 5$<br>$\geq 21$ | 696<br>709 | 17.0<br>42.6             | 60.07    | <0.001  |
| Had seen a coyote near their home           | $\leq 5$<br>$\geq 21$ | 705<br>721 | 8.1<br>20.8              | 46.47    | <0.001  |
| Had a problem with a coyote in NY           | $\leq 5$<br>$\geq 21$ | 705<br>721 | 0.7<br>2.2               | 5.60     | 0.0179  |
| Reported a problem to some authority        | $\leq 5$<br>$\geq 21$ | 705<br>721 | 0.6<br>1.8               | 4.73     | 0.029   |

**Table 15.** Attitudes toward coyotes expressed by all respondents to the 2007 Saratoga County resident telephone survey.

| <u>Attitude response categories</u>  | Years in county |                       | Total<br>(n=1413) |
|--|-----------------|-----------------------|-------------------|
|  | ≤5<br>(n=701)   | ≥21<br>(n=712)<br>(%) |                   |
| I enjoy knowing coyotes are around, and I do not worry about problems they may cause.    | 27.4            | 28.9                  | 28.2              |
| I enjoy knowing coyotes are around, but I worry about problems they may cause.           | 25.7            | 25.0                  | 25.3              |
| I do not enjoy knowing coyotes are around and I regard them as a nuisance <sup>a</sup> . | 10.0            | 15.4                  | 12.7              |
| I have no particular opinions about coyotes in Saratoga County.                          | 36.9            | 30.6                  | 33.8              |
| Total  | 100.0           | 100.0                 | 100.0             |

$$\chi^2 = 12.83; df=3; p = 0.005$$

$$^a \chi^2 = 9.49; df=1; p = 0.002$$

$$^b \chi^2 = 6.33; df=1; p = 0.012$$

**Table 16.** Attitudes about coyotes and perceptions of coyote-related risks expressed by newcomers and longtime residents in the 2007 Saratoga County resident telephone survey.

| <u>Attitude measures</u>                                    | Years in<br>county | n   | Strongly<br>agree | Agree | Disagree | Strongly<br>disagree | $\chi^2$ | p-value |
|---|--------------------|-----|-------------------|-------|----------|----------------------|----------|---------|
|   |                    |     |                   |       | (%)      |                      |          |         |
| I am pleased that coyotes live in my area.                  | ≤5                 | 246 | 2.4               | 32.5  | 46.7     | 18.3                 | 0.82     | 0.843   |
|   | ≥21                | 276 | 1.8               | 33.3  | 44.2     | 20.7                 |          |         |
| Coyotes are a valuable part of the<br>community             | ≤5                 | 239 | 10.9              | 52.3  | 29.7     | 7.1                  | 4.89     | 0.180   |
|   | ≥21                | 259 | 7.7               | 50.6  | 29.3     | 12.4                 |          |         |
| I am concerned about the presence of<br>coyotes in my area. | ≤5                 | 243 | 14.0              | 60.9  | 24.7     | 0.4                  | 9.56     | 0.023   |
|   | ≥21                | 281 | 20.6              | 48.4  | 29.5     | 1.4                  |          |         |
| <u>Cognitive risk measures</u>                              |                    |     |                   |       |          |                      |          |         |
| The likelihood of a pet injury is<br>acceptably low.        | ≤5                 | 231 | 4.8               | 50.6  | 33.8     | 10.8                 | 1.52     | 0.677   |
|   | ≥21                | 257 | 3.9               | 46.7  | 35.8     | 13.6                 |          |         |
| The likelihood of a human injury is<br>acceptably low.      | ≤5                 | 238 | 10.1              | 64.7  | 21.0     | 4.2                  | 3.92     | 0.270   |
|   | ≥21                | 274 | 14.6              | 61.3  | 17.9     | 6.2                  |          |         |

**Table 17.** Perceptions of coyote-related risks expressed by respondents in two study areas for the 2007 Saratoga County resident telephone survey.

| <u>Affective risk measures</u>  | Years<br>in<br>county | n   | Level of concern |      |               | $\chi^2$ | p-value |
|---|-----------------------|-----|------------------|------|---------------|----------|---------|
|   |                       |     | None             | Some | Great<br>deal |          |         |
|   |                       |     | (%)              |      |               |          |         |
| How would you describe<br>your level of concern about<br>the threat coyotes might<br>present to pets in your area?              | ≤5                    | 249 | 16.5             | 66.7 | 16.9          | 0.680    | 0.712   |
|   | ≥21                   | 286 | 17.8             | 63.3 | 18.9          |          |         |
| How would you describe<br>your level of concern about<br>the threat coyotes might<br>present to small children in<br>your area? | ≤5                    | 249 | 19.7             | 54.2 | 26.1          | 4.25     | 0.119   |
|   | ≥21                   | 286 | 24.8             | 45.5 | 29.7          |          |         |

**Table 18.** Response to hypothetical coyote presence scenarios as expressed by respondents in the 2007 Saratoga County resident telephone survey.

| Coyote presence scenario   | Years in county | n   | Be pleased | Not care (%) | Be concerned | $\chi^2$ | p-value |
|--|-----------------|-----|------------|--------------|--------------|----------|---------|
|  |                 |     |            |              |              |          |         |
| If you <u>occasionally</u> observe coyotes in <u>natural areas</u> or <u>green spaces</u> within Saratoga County, would you: | ≤5              | 245 | 22.9       | 40.4         | 36.7         | 2.62     | 0.270   |
|  | ≥21             | 284 | 20.4       | 35.9         | 43.7         |          |         |
| If you <u>occasionally</u> observe coyotes <u>within your town</u> would you:  | ≤5              | 248 | 6.0        | 17.7         | 76.2         | 0.77     | 0.680   |
|  | ≥21             | 288 | 8.0        | 17.7         | 74.3         |          |         |
| 5 If you <u>regularly</u> observe coyotes <u>within your town</u> would you:   | ≤5              | 249 | 2.4        | 5.2          | 92.4         | 1.06     | 0.588   |
|  | ≥21             | 288 | 2.8        | 7.3          | 89.9         |          |         |
| If you <u>occasionally</u> observe coyotes passing through <u>your backyard</u> would you:                                   | ≤5              | 248 | 2.0        | 8.5          | 89.5         | 2.49     | 0.287   |
|  | ≥21             | 288 | 3.5        | 11.5         | 85.1         |          |         |
| If you <u>regularly</u> observe coyotes in <u>your backyard</u> , would you:   | ≤5              | 249 | 0.4        | 2.0          | 97.6         | 5.31     | 0.070   |
|  | ≥21             | 288 | 1.4        | 5.2          | 93.4         |          |         |



**Table 19.** Responses of newcomers and longtime residents in Saratoga County on items related to behavioral intentions and social norms from the 2007 Saratoga County resident telephone survey.

| Response to a<br>coyote encounter<br><u>near your home</u> | Years in<br>county | n   | Move<br>away | Watch;<br>but don't<br>disturb | Feed the<br>coyote | Scare the<br>coyote | Kill the<br>coyote | $\chi^2$ | p-value |
|--|--------------------|-----|--------------|--------------------------------|--------------------|---------------------|--------------------|----------|---------|
|  |                    |     |              |                                | (%)                |                     |                    |          |         |
| In the future I would:                                     | ≤5                 | 248 | 30.6         | 52.4                           | 1.2                | 11.7                | 4.0                | 4.11     | 0.391   |
|  | ≥21                | 284 | 31.3         | 46.8                           | 1.1                | 13.0                | 7.7                |          |         |
| Others think I should:                                     | ≤5                 | 243 | 41.2         | 37.4                           | 0.0                | 14.0                | 7.4                | 3.58     | 0.465   |
|  | ≥21                | 262 | 38.9         | 33.6                           | 0.4                | 16.4                | 10.7               |          |         |
| Most residents would                                       | ≤5                 | 228 | 40.4         | 24.6                           | 0.4                | 27.2                | 7.5                | 4.50     | 0.342   |
|  | ≥21                | 264 | 37.9         | 25.8                           | 0.0                | 24.2                | 12.1               |          |         |

**Table 20.** Personal characteristics of longtime residents ( $\geq 21$  years) in Westchester and Saratoga counties, reported in the 2006 Westchester County and 2007 Saratoga County resident telephone surveys.

|  | County          | n   | % with characteristic | $\chi^2$ | p-value |
|--|-----------------|-----|-----------------------|----------|---------|
| <u>Respondent characteristics</u>        |                 |     |                       |          |         |
| Children $\leq 6$ years old in household | WC <sup>1</sup> | 695 | 10.2                  | 1.07     | 0.301   |
|  | SC <sup>2</sup> | 720 | 11.9                  |          |         |
| Some type of animals in household        | WC              | 699 | 45.1                  | 12.29    | <0.001  |
|  | SC              | 721 | 54.4                  |          |         |
| Type of pet: dog                         | WC              | 699 | 28.0                  | 6.11     | 0.013   |
|  | SC              | 721 | 34.1                  |          |         |
| Type of pet: cat                         | WC              | 699 | 24.0                  | 20.3     | <0.001  |
|  | SC              | 721 | 35.0                  |          |         |
| Feed birds or other wildlife             | WC              | 699 | 47.5                  | 34.37    | <0.001  |
|  | SC              | 721 | 63.0                  |          |         |
| Feed pets outdoors                       | WC              | 699 | 7.5                   | 16.07    | <0.001  |
|  | SC              | 719 | 14.1                  |          |         |
| Curb garbage night before pickup         | WC              | 693 | 43.0                  | 82.45    | <0.001  |
|  | SC              | 719 | 67.0                  |          |         |
| Have gone hunting in past 5 years        | WC              | 699 | 3.4                   | 29.94    | <0.001  |
|  | SC              | 720 | 11.0                  |          |         |
| Gender: female                           | WC              | 700 | 55.1                  | 0.398    | 0.528   |
|  | SC              | 720 | 56.8                  |          |         |

<sup>1</sup> Westchester County

<sup>2</sup> Saratoga County

**Table 21.** Area of residence for longtime residents ( $\geq 21$  years) in Westchester and Saratoga counties, reported in the 2006 Westchester County and 2007 Saratoga County resident telephone surveys.

| <u>Area description</u>  | County                 |                            | Total<br>(n=1417) |
|--|------------------------|----------------------------|-------------------|
|  | Westchester<br>(n=697) | Saratoga<br>(n=720)<br>(%) |                   |
| A town or city with many people.   | 9.6                    | 19.4                       | 14.6              |
| A suburb with many people/houses and some green space.                         | 64.6                   | 49.2                       | 56.7              |
| An area outside of town with scattered houses and a great deal of green space. | 25.8                   | 31.4                       | 28.7              |
| Total  | 100.0                  | 100.0                      | 100.0             |

$\chi^2 = 42.05$ ; df = 2;  $p < 0.001$

**Table 22.** Highest level of education reported by long-term residents ( $\geq 21$  years) responding to the 2006 Westchester County and 2007 Saratoga County resident telephone surveys.

| <u>Highest level of education</u> | Longtime county residents |                            | Total<br>(n=1406) |
|-----------------------------------|---------------------------|----------------------------|-------------------|
|                                   | Westchester<br>(n=688)    | Saratoga<br>(n=718)<br>(%) |                   |
| Less than high school             | 0.7                       | 3.2                        | 2.0               |
| Completed high school or GED      | 15.8                      | 26.3                       | 21.2              |
| Vocational or trade school        | 1.5                       | 2.6                        | 2.1               |
| Some college                      | 10.8                      | 12.4                       | 11.6              |
| Two-year degree                   | 10.0                      | 13.4                       | 11.7              |
| Four-year degree                  | 26.5                      | 23.5                       | 25.0              |
| Graduate school                   | 34.7                      | 18.5                       | 26.5              |
| Total                             | 100.0                     | 100.0                      | 100.0             |

$\chi^2 = 71.71$ ; df = 6; p < 0.001

**Table 23.** Awareness of and experiences with coyotes as expressed by longtime residents ( $\geq 21$  years) responding to the 2006 Westchester County and 2007 Saratoga County resident telephone surveys.

| Awareness and<br>experience measures       |     | Longtime county residents |      |                     |      | X <sup>2</sup> | p-value |
|--|-----|---------------------------|------|---------------------|------|----------------|---------|
|  |     | Westchester<br>(n=700)    |      | Saratoga<br>(n=721) |      |                |         |
|  |     | n                         | %    | n                   | %    |                |         |
| Aware of coyotes in<br>county of residence | Yes | 608                       | 86.8 | 533                 | 74.2 | 37.54          | <0.001  |
|  | No  | 92                        | 13.2 | 188                 | 25.8 |                |         |
| Seen coyotes in county of<br>residence     | Yes | 371                       | 53.0 | 302                 | 41.9 | 17.59          | <0.001  |
|  | No  | 329                       | 47.0 | 419                 | 58.1 |                |         |
| Seen coyotes near<br>residence             | Yes | 245                       | 35.0 | 150                 | 20.8 | 35.66          | <0.001  |
|  | No  | 455                       | 65.0 | 571                 | 79.8 |                |         |
| Had a problem with a<br>coyote             | Yes | 25                        | 3.6  | 16                  | 2.2  | 2.31           | 0.127   |
|  | No  | 675                       | 96.4 | 705                 | 97.8 |                |         |
| Reported a problem                         | Yes | 42                        | 6.0  | 13                  | 1.8  | 16.81          | <0.001  |
|  | No  | 658                       | 94.0 | 708                 | 98.2 |                |         |

**Table 24.** Attitudes toward coyotes expressed by all longtime residents ( $\geq 21$  years) responding to the 2006 Westchester County and 2007 Saratoga County resident telephone surveys.

| <u>Attitude response categories</u>  | County                 |                     |
|--|------------------------|---------------------|
|  | Westchester<br>(n=692) | Saratoga<br>(n=712) |
|  | (%)                    |                     |
| I enjoy knowing coyotes are around, and I do not worry about problems coyotes may cause. | 26.6                   | 28.9                |
| I enjoy knowing coyotes are around, but I worry about problems coyotes may cause.        | 28.0                   | 25.0                |
| I do not enjoy knowing coyotes are around and regard them as a nuisance.                 | 25.6                   | 15.4                |
| I have no particular opinions about coyotes in [county name].                            | 19.8                   | 30.6                |

$\chi^2 = 35.77$ ; df = 3;  $p < 0.001$

**Table 25.** Attitudes about coyotes and perceptions of coyote-related risks expressed by longtime residents ( $\geq 21$  years) in the 2006 Westchester County and 2007 Saratoga County resident telephone surveys.

| <u>Attitude measures</u>                                 | County          | n   | Strongly agree | Agree | Disagree<br>(%) | Strongly disagree | $\chi^2$ | p-value |
|--|-----------------|-----|----------------|-------|-----------------|-------------------|----------|---------|
| I am pleased that coyotes live in my area.               | WC <sup>1</sup> | 349 | 2.6            | 24.6  | 46.1            | 26.6              | 6.92     | 0.074   |
|  | SC <sup>2</sup> | 276 | 1.8            | 33.3  | 44.2            | 20.7              |          |         |
| Coyotes are a valuable part of the community.            | WC              | 330 | 8.8            | 43.6  | 35.5            | 12.1              | 3.35     | 0.340   |
|  | SC              | 259 | 7.7            | 50.6  | 29.3            | 12.4              |          |         |
| I am concerned about the presence of coyotes in my area. | WC              | 365 | 23.0           | 52.9  | 23.3            | 0.8               | 3.94     | 0.267   |
|  | SC              | 281 | 20.6           | 48.4  | 29.5            | 1.4               |          |         |
| <u>Cognitive risk measures</u>                           |                 |     |                |       |                 |                   |          |         |
| The likelihood of a pet injury is acceptably low.        | WC              | 324 | 1.9            | 41.0  | 40.4            | 16.7              | 4.88     | 0.181   |
|  | SC              | 257 | 3.9            | 46.7  | 35.8            | 13.6              |          |         |
| The likelihood of a pet injury is acceptably low.        | WC              | 332 | 7.8            | 65.1  | 21.1            | 6.0               | 7.43     | 0.059   |
|  | SC              | 274 | 14.6           | 61.3  | 17.9            | 6.2               |          |         |

<sup>1</sup> Westchester County

<sup>2</sup> Saratoga County

**Table 26.** Perceptions of coyote-related risks expressed by longtime residents ( $\geq 21$  years) in the 2006 Westchester County and 2007 Saratoga County resident telephone surveys.

| <u>Affective risk measures</u>  | County          | Level of concern |      |             |               | $\chi^2$ | p-value |
|---|-----------------|------------------|------|-------------|---------------|----------|---------|
|   |                 | n                | None | Some<br>(%) | Great<br>deal |          |         |
| How would you describe your level of concern about the threat coyotes might present to pets in your area?           | WC <sup>1</sup> | 369              | 14.4 | 58.3        | 27.4          | 6.80     | 0.033   |
|   | SC <sup>2</sup> | 286              | 17.8 | 63.3        | 18.9          |          |         |
| How would you describe your level of concern about the threat coyotes might present to small children in your area? | WC              | 366              | 14.5 | 48.6        | 36.9          | 11.81    | 0.003   |
|   | SC              | 286              | 24.8 | 45.5        | 29.7          |          |         |

<sup>1</sup> Westchester County

<sup>2</sup> Saratoga County



**Table 27.** Response to hypothetical coyote presence scenarios as expressed by longtime residents ( $\geq 21$  years) who responded to the 2006 Westchester County and 2007 Saratoga County resident telephone surveys.

| <u>Coyote presence scenario</u>   | County          | n   | Be<br>pleased | Not<br>care | Be<br>concerned | $\chi^2$ | p-value |
|---|-----------------|-----|---------------|-------------|-----------------|----------|---------|
| If you <u>occasionally</u> observe coyotes in <u>natural areas</u><br>or <u>green spaces</u> within [W or S] County, would you: | WC <sup>1</sup> | 368 | 28.0          | 23.9        | 48.1            | 12.32    | 0.002   |
|   | SC <sup>2</sup> | 284 | 20.4          | 35.9        | 43.7            |          |         |
| If you <u>occasionally</u> observe coyotes in <u>within your town</u> would you:  | WC              | 368 | 7.3           | 12.2        | 80.4            | 4.18     | 0.123   |
|   | SC              | 288 | 8.0           | 17.7        | 74.3            |          |         |
| If you <u>regularly</u> observe coyotes in <u>within your town</u><br>would you:  | WC              | 369 | 3.0           | 6.5         | 90.5            | 0.17     | 0.916   |
|   | SC              | 288 | 2.8           | 7.3         | 89.9            |          |         |
| If you <u>occasionally</u> observe coyotes passing <u>through your backyard</u> would you:                                      | WC              | 370 | 3.5           | 8.6         | 87.8            | 1.42     | 0.487   |
|   | SC              | 288 | 3.5           | 11.5        | 85.1            |          |         |
| If you <u>regularly</u> observe coyotes in <u>your backyard</u> ,<br>would you:   | WC              | 369 | 1.6           | 2.7         | 95.7            | 2.80     | 0.247   |
|   | SC              | 288 | 1.4           | 5.2         | 93.4            |          |         |

<sup>1</sup> Westchester County

<sup>2</sup> Saratoga County